



Hurricane Irma/Hurricane Maria 2017 10/20/2017 – 1030 EDT Update

New or Updated Information is Highlighted in this Report

EXECUTIVE SUMMARY

- The humanitarian crisis – particularly in Puerto Rico – is severe. Residents in more remote areas are still lacking food, water and medicine. Distribution of these supplies has improved as roads have been cleared, but remains a major difficulty. Heavy rains during much of October to date have exacerbated flooding, landslides, road closures, etc.
- There are reports that the incidence of diseases is increasing, including gastro-intestinal problems and conjunctivitis, leptospirosis and other vector-borne diseases.
- Many buildings on the several islands of PR and the USVI sustained serious damage; on St. John, USVI, over 80% of buildings were heavily damaged.
- **First Contact.** EPA and NGOs made first contact today in a community within the municipality of Lares, Puerto Rico. They gave water, chlorination tablets and education.





- Power remains out for about 85% of the residents of PR and USVI. The USVI anticipates restoration of power to 90% of clients by the end of the calendar year. PR Governor Rossello has set a similar goal, but it is not certain this schedule can be met. Many office and commercial buildings have generators, as do many private residences; but access to fuel remains difficult. There are reports of thefts of fuel and even generators.
- Drinking water systems have been compromised on all the islands – particularly distribution of finished water. Much of the distribution network relies on electric-powered pump stations and is thus affected by the power outages and lack of fuel for generators. In PR, about 28% of the population is still not receiving drinking water through the utility system. Comparable data for the USVI is not available, but the population is reportedly being provided with adequate supplies of drinking water.
- PR sewage systems were damaged; about 19.6% of the sewage treatment plants are still not operational because of damage to the plants themselves, damage to the trunk lines that bring the sewage to the plants, and/or damage to or lack of electric power at pump stations. Raw sewage discharges are ubiquitous; some discharges enter waterways upstream of drinking water intakes. Residents are using surface waters (rivers, streams, lakes, coastal waters) for washing, potentially exposing them to harmful pathogens from the sewage discharges. EPA, CDC and PR DOH are advising residents not to bathe in surface waters. In the USVI, damage to sewage systems was less severe, but plants do not have primary power, and lack sufficient generators or generator fuel.
- Waste management is a major concern. A large amount of storm-damaged debris is accumulating across all the islands. Debris lines many roads. In PR, there are reports of unauthorized, clandestine dumps being created in many places.
- EPA's major missions on the islands include: assessment of drinking water and sewage systems; oil and chemical spill response; oil and chemical facility assessments; and debris management (particularly hazardous materials, and oversight of possible mass burning of

debris). EPA works closely with FEMA, USACE, US Coast Guard (USCG), and other federal and local government authorities.

- Region 2's CEPD Guaynabo office is mostly running on power from the utility, but that service occasionally still fails and then generator power is activated. Data and voice services and cell phone service is operating. The CEPD offices in Vieques, PR and St. Thomas, USVI, sustained some minimal damage, and have limited power and water service; these offices remain officially closed until further notice.
- EPA currently has approximately 173 personnel (employees and contractors) in PR and the USVI working on the response. This number includes some CEPD staff who are participating in the response. We plan for that number to increase significantly to over 200 before the end of October, and to about 400 by early December. To date, however, it has been extremely challenging for EPA to move response personnel and equipment to the islands. Access to seats on flights has improved but securing lodging on the islands remains difficult. EPA continues to pursue berthing space on the various FEMA-supported vessels arriving in PR and the USVI.
- **Critical Incident Stress Management (CISM).** We are seeing the effects of this response already in people who are in the middle of their field response tour, in those who have returned from PR and USVI, and the people working within the REOC. We have contacted EPA HQ OEM to activate our CISM program. Phase 1 of our CISM deployment will be to immediately provide Peer Support and CISM Team support to field responders and REOC personnel by sharing a CISM Communications Plan so employees can get support by telephone. Our Safety Officers and Assistant Safety Officers will insure dissemination of the plan so responders can reach out to CISM Team members if they feel the need. Phase 2 will bring CISM Team member(s) to the Region 2 REOC and Phase 3 will be CISM Team members on the ground in PR and USVI as lodging becomes available.
- EPA Region 2 Regional Administrator Peter Lopez travelled to PR and the USVI during the week of 10/16. While in the islands he met with senior elected officials from the two jurisdictions. DRA Catherine McCabe and EPA Caribbean Division Director and Deputy Carmen Guerrero and Jose Font accompanied him. In the USVI on 10/19 they visited both St Croix and St Thomas. In addition to meeting with Governor Kenneth Mapp on STX, the RA met on STT with the Commissioners of DPNR, Public Works, and Waste Management. They were briefed on the Vessel Recovery Program by the USCG. The subsequent field trip was conducted in Krum Bay, STT. Sites visited included potential vessel staging area, and recovered battery recovery staging location and HHW staging area.



EPA OSC Dilshad Perera explaining vessel recovery



USCG representative with DPNR Commissioner Dawn Henry, DRA and RA in Krum Bay STT

- Official Commonwealth and Territorial Requests for Assistance
 - Puerto Rico Requests
 - On 9/9 requested to assess oil & hazmat releases, contaminated debris & other environmental events in PR.
 - On 9/28 requested removal, cleanup and disposal of oil & hazmat; collect and dispose of HHW; monitor immediate threats to public H&S and the environment in PR
 - On 9/30 requested to coordinate/execute all necessary assessments, evaluations, sampling and analytical services/support to ensure the safety and quality of drinking water & wastewater.
 - USVI Requests
 - On 9/7 requested to assess oil & hazmat releases, contaminated debris & other environmental events in the VI.
 - On 9/13 requested removal, cleanup and disposal of oil & hazmat; collect and dispose of HHW; monitor immediate threats to public H&S and the environment in the VI.
 - EPA has been requested by DPNR/VITEMA and FEMA to add collection and disposal of medical waste as part of our hazardous waste mission. EPA is drafting a Mission Assignment Task Order (MATO) to task this medical waste mission under our existing direct assistance MA.
 - EPA has been requested by DPNR/VITEMA and FEMA to assess air quality in public schools on STT and STX.
 - On 10/6 Dawn Henry, Director of the USVI DPNR, wrote to R2 requesting assignment of a variety of human resources to assist DPNR; these include an

attorney, public affairs specialist, children's health specialist, solid & hazardous wastes specialist, and oil specialist. R2 will evaluate and respond to the request.

- Other Significant Upcoming Events.
 - New York City Marathon, 11/5/17, New York, NY
 - **ICS Training.** ICS 404 Safety Officer Course - Region 2 will be hosting an abbreviated ICS 404 Safety Officer course on November 7-9. It will be held at the Edison Facility in Building 238. We are looking for people in Region 2 and other Regions who would be interested in being Assistant Safety Officers. Be sure to have your supervisor's approval before registering. Registration for this course is done through <https://trainex.org/offeringslist.cfm?courseid=470>.
 - Macy's Thanksgiving Day Parade, 11/24-25/17, New York, NY

PUERTO RICO / U.S. VIRGIN ISLANDS CONDITIONS

US Virgin Islands (USVI):

- State of Emergency declared; National Guard activated.
- **Curfew.** Effective immediately, uniform curfew hours of 8 p.m. to 5 a.m. will be in place across all three Virgin Islands.
- **Power:**
 - St. Thomas 23% are receiving power from the grid
 - St. John: 0% No grid power
 - St. Croix 17% are receiving power from the grid
 - 90% of the USVI to be restored by late December 2017.
- **Cellular Coverage.** USVI:45% cell sites are operational; St. Thomas: 51% cell sites operational; St. John: 11% cell sites operational; St. Croix: 41% cell sites operational.
- **Airports:** St. Thomas and St. Croix: Open and receiving commercial aircraft.
- **Ports:** Six ports open and three ports opened with restrictions. Passenger ferry service available from St. John to Red Hook (7:00 a.m. to 5:30 p.m.)

Puerto Rico (PR):

- **PREPA** – PREPA reports that **78%** of their clients are without service.
- **Telecommunications** – Telecommunications Board reports that **39%** of telecommunications service is still disrupted.

- **Solid Waste Management** – Municipalities continue to report that large amounts of clandestine dumps have been established in their communities. They are concerned with public health and environmental impacts.
- **Fuel Supply** – 21% of gasoline stations are not operational. 873 of 1,100 gas stations are currently operational.
- **Airports** – Luis Munoz Marin International Airport has reestablished operations. Currently managing approximately 50 flights per day. Airport continues to be affected by intermittent power outages.
- **Ports** – Port Authority reports that 25% of ports remain closed. Mayaguez port remains closed as they need to receive a certification of the US Coast Guard.
- **Hospitals** – 44 hospitals have been energized. 72 hospitals are receiving assistance and support in diesel distribution and generator maintenance. A number of hospitals have had to close and transfer their patients to other hospitals as their generators have broken down. Medical Super Shelters (with capacity for 250 patients) have been established in five locations in Puerto Rico. USNS Comfort (with capacity for 1,000 patients) was transferred to the western part of the island to support medical needs and attend medical patients referred by the PR Department of Health in this region. It will make stops in Arecibo-Manati, Aguadilla, Mayaguez, Yauco-San German, and Ponce.
- **Curfew** – Curfew hours in Puerto Rico are from 12:00 am to 5:00 am.
- **Shelters** – 4,374 residents currently living on government shelters.
- **Disease Outbreaks** – Disease outbreaks have been reported in numerous municipalities (diarrhea, conjunctivitis, etc.). Department of Health confirmed 74 potential cases of leptospirosis and the confirmed death of one person due to the disease.
- **Socioeconomic Issues** – Many inland municipalities continue to claim that aid is not reaching their communities, particularly food and water.

PUBLIC AFFAIRS

The PIO is Rusty Harris-Bishop, who can be reached at 415-694-8840. The Assistant PIO for Community Relations is Pat Seppi, who can be reached at 646-369-0068. The Assistant PIO for Media Relations is Darrin Larson, who can be reached at 972-467-5509. All press inquiries are being managed through the Office of Public Affairs. EPA staff in the CEPD will be assisting with PIO activities as our Field PIO has demobilized and will be replaced on Sunday Oct. 22. Silvia Palomo is also at the EPA desk at the Sheraton Convention Center, supporting the Community Involvement Coordinators in the field, and can be reached 206-437-9327.

A Maria update news release is planned for 10/20 that will highlight the Regional Administrator's visit to St. Croix and St. Thomas yesterday and the meeting with Governor Mapp, sampling at the Dorado Superfund site, and EPA's first contact with the Lares community. We continue to provide all Region 2

staff with relevant Maria news clips and EPA news releases. News releases are being translated into Spanish and posted and distributed widely by the PIO.

The response web site www.epa.gov/hurricane-maria is being updated daily by the Region 2 PIO and Assistant PIO for Media.

OBJECTIVES

Region 2 – Hurricane Maria Management Objectives

- Protect the health and safety of EPA employees.
- Implement the mobilization plan to move needed personnel and equipment to the islands.
- Minimize social, political, and economic adverse impacts.
- Maintain communication and briefing schedule with R2 senior executives and EPA Headquarters. Support a consistent communications approach agency-wide, enabling EPA to act and speak in unison during these incidents.
- Provide situation reports and other information on schedule provided by RIC.
- Provide guidance for length of work day and deployments as it pertains to this specific event.
- Coordinate logistics with deployed personnel to provide transportation options, lodging, security, ground transportation on site.
- Identify clearly defined roles for both Regions and Headquarters.
- Identify long-term recovery objectives the Agency may be requested to support, and determine resources needed to support/sustain those requests to accomplish the objectives.
- Secure NPL and removal sites. Regulated facilities and Superfund and oil sites will be surveyed post storm fall.
- Identify vulnerabilities at regulated facilities.
- Address any immediate hazardous substance releases or oil spills resulting from the storm's impact.
- Assist state and local agencies in ensuring safety of drinking water systems.
- Coordinate with the USACE and FEMA to assist state and local agencies to repair drinking water infrastructure.
- Assist federal, state and local agencies to assess and identify needed repairs to wastewater conveyance and treatment systems.
- Assist federal, state and local agencies in management of debris, including in particular hazardous materials, electronic waste, medical waste, refrigerants, white goods, and oil and chemical wastes; provide guidance and oversight if/when thermal reduction (burning) of wastes is carried out.
- Monitor air quality when/if necessary in response to conditions on the ground.
- Coordinate national resources to assist the Region.
- The response will use the Region's incident specific Data Management Plan (DMP).
- In collecting, sharing, and analyzing environmental data, EPA will give primacy to data with potential human health consequences.
- EPA will work to ensure that its decision-makers have access to the data and expertise they need to make decisions based on sound science.

Region 2 - Hurricane Maria Incident Objectives

- The health and safety of our responders is our highest priority. Develop health and safety messages daily for all field operations;
- Ensure health and safety of the public by conducting environmental assessments and operating in accordance with approved site safety plans;
- Coordinate deployments and field activities with community involvement coordinator and Assistant Safety Officers;
- Continue coordination with OSC deployed to the NRCC in Washington DC on logistics and FEMA Mission Assignments;
- Continue coordination with OSCs deployed at the FEMA Interim Operating Facility in San Juan, PR;
- Continue coordination with OSCs deployed to the EOCs on St. Croix and St. Thomas;
- Coordinate and prioritize the assessment of Hazardous Material and Oil Response sites in Puerto Rico and USVI;
- Coordinate with CEPD, prioritize and perform drinking water and waste water assessment targets in Puerto Rico and the USVI;
- Coordinate, prioritize and perform fixed facility assessments of RMP, FRP and SPCC facilities in Puerto Rico;
- Perform preparation activities for upcoming field deployment of clean-up resources for abandoned containers, household hazardous waste, hazardous debris and hazardous material staging areas in Puerto Rico and USVI;
- Continue consolidating ERRS equipment for FEMA transport to Puerto Rico;
- Coordinate all field activities with CEPD program office staff and FEMA division coordinators. Support CEPD operations that are within the scope of the FEMA Mission Assignments;
- Coordinate with U.S. Army Corps of Engineers (USACE) in support of the collection of household hazardous waste in the USVI;
- Support USCG sunken vessel recovery operations and coordinate operations with ESF10 partner USCG;
- Continue drinking water sampling and facility assessments as coordinated and prioritized with DPRN in the USVI;
- Develop and implement a full staffing plan to increase the response effort to meet the FEMA mission assignments and then for continuous operation in Puerto Rico, USVI and the REOC.

DEBRIS RECOVERY

Puerto Rico Debris Mission

- EPA continues to coordinate with the US Army Corp of Engineers in support of EPA's hazardous materials removal operations Mission Assignment. USACE is currently completing the permit process for several locations for debris collection staging areas. EPA plans to co-locate hazardous material staging areas at all identified staging locations. Until USACE's areas are identified, EPA is coordinating with EQB to establish a temporary hazardous materials staging area. EPA is conducting Site visits with USACE and EQB at the purposed USACE staging areas, as well municipal collection areas.
- The EPA Emergency and Rapid Response Services (ERRS) contractor is planning to ship necessary equipment to support the debris MAs, using a FEMA transport. Equipment is on route to the Virgin Islands; transport to Puerto Rico is expected to depart by 10/19. In the interim, JFO

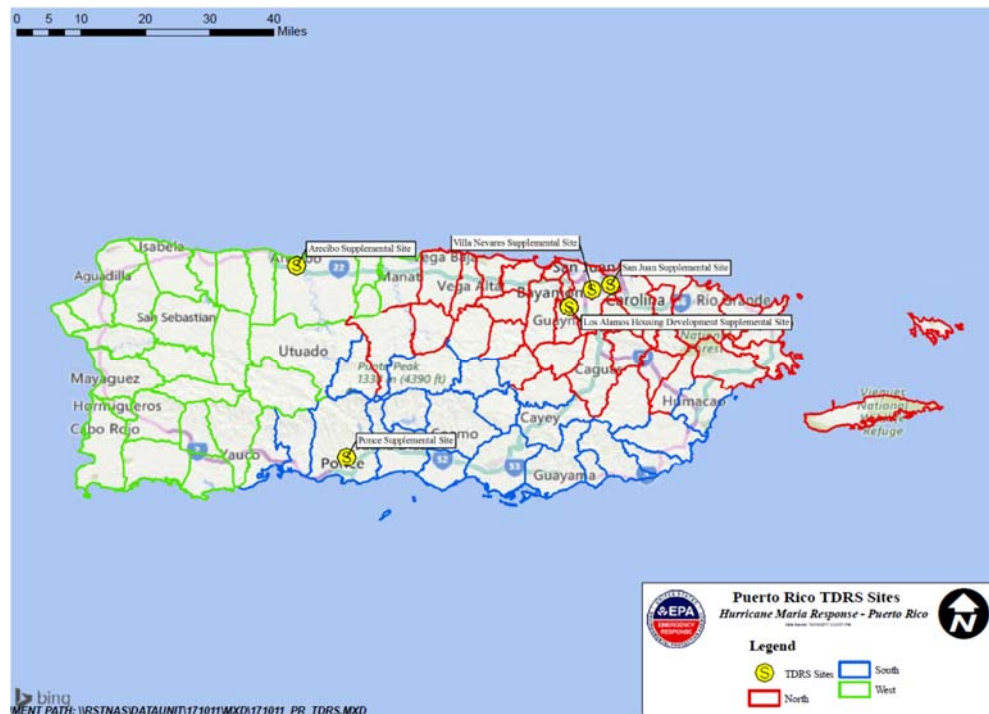
staff are coordinating with FEMA at the NRCC.

- A staging area at the US Army Garrison - Ft. Buchanan, in Guaynabo, has been secured for the eventual staging of this equipment. This location will be used to stage equipment and will not be a hazardous materials/waste staging area. Additional personnel, both EPA and contractors, continue to mobilize to PR in support of the mission assignment.
- EPA is adding a Hazardous Debris Assessment Team to each of the three field branches to coordinate with CEPD and USACE. These teams have a list of the landfills and other locations identified by CEPD that are being considered for temporary hazardous debris staging pads. The teams will also document areas where residents have begun to accumulate hazardous debris, such as roadside dumping locations for pick up and transportation to approved staging pads. The coordinator for Hazardous Debris Assessment is Carlos Huertas, who will be located in San Juan.
- EPA is developing our Agency access agreements to assist with the early establishment of our hazardous waste staging areas.

Puerto Rico Sites - Under Consideration for Debris Staging

Zone	Site ID	Municipality	GPS Coordinates	Description	Owner	Type Of Site		Proposed Type of Debris to be Managed									
						TDS	LANDFILL	Clean Vegetative Debris	Mixed Debris	HWI/TW	Trees	White Goods	C&D	Mech	Ash	Residues	
1	100	Naguabo	18.21347, -65.72506	Former Industrial Site with over 38.5 Acres	Puerto Rico Industrial Development Corporation (PRIDCO)	X	X	X	X								
1	101	Fajardo	18.30971, -65.663130	Old Airport Facility (Unknown Acres)	Land Authority	X	X	X	X								
1	102	Vieques	18.149028, -65.416931	Vieques Sanitary Landfill: Existing Landfill Facility in compliance with EQB / EPA Regs (Unknown Acres)	Municipality of Vieques	X				X	X	X					
1	103	Canovanas	18.385917, -65.877508	Former Industrial Site (Unknown Acres)	Puerto Rico Industrial Development Corporation (PRIDCO)	X				X	X	X					
1	104	Culebra	18.317959, -65.276760	Culebras Site in front of PRASA: Raw Land in front of PRASA Waste Water Treatment Plant with 10 Acres aprox.	Puerto Rico Industrial Development Corporation (PRICO)	X	X	X	X	X	X	X	X	X	X	X	
1	105	Humacao	18.128110, -65.806972	El Coqui Landfill: Existing Landfill Facility in compliance with EQB / EPA Regs.	EC Waste LLC	X	X	X	X	X	X	X	X	X	X	X	
2	106	Toa Baja	18.426793, -66.187961	Old Military Base with over 200 Acres	Sabana Seca Partners					X	X	X	X	X	X	X	
2	107	Toa Baja	18.423514, -66.111988	Sabana Seca Naval Station: Raw Land with over 100 Acres	Federal Government	X	X	X	X								
2	108	Bayamon	18.386858, -66.133825	Commercial Site Near Costco: Proposed Mail Site with over 20 Acres	Mora Development	X	X	X	X								
2	109	Trujillo Alto	18.361946, -65.995524	Las Cuevas Industrial Park: Industrial Site with 8.2 Acres	Puerto Rico Industrial Development Corporation (PRIDCO)		X		X			X	X	X	X		
2	110	Bayamon	18.359634, -66.140202	Munillas Industrial Subdivision: Former Industrial Site with 2.4 Acres	Puerto Rico Industrial Development Corporation (PRIDCO)	X	X		X			X	X	X	X		
3	111	Vega Baja	18.271437, -66.231892	Cabo Caribe Ward Industrial Park: Industrial Site with 10.1 Acres	Puerto Rico Industrial Development Corporation (PRIDCO)	X	X		X			X	X	X	X		
3	112	Vega Alta	18.417595, -66.329843	Espinosa Ward: Former Industrial Site with 5.7 Acres	Puerto Rico Industrial Development Corporation (PRIDCO)	X	X		X			X	X	X	X		
3	113	Arecibo	18.448506, -65.567500	Santana Ward: Industrial Site with 24.74 Acres	Puerto Rico Industrial Development Corporation (PRIDCO)	X	X	X	X								
3	114	Arecibo	18.459770, -66.701138	Energy Answerers Site: Raw Land with 50 Acres	Energy Answerers												
4	115	Mayaguez	18.218616, -67.161086	Mayaguez Foreign Trade Zone: Former Industrial Site with 8.8 Acres	Puerto Rico Industrial Development Corporation (PRIDCO)	X	X	X	X								
4	116	Aguadilla		Montaña Industrial Area: Former Industrial Site with 12.65 Acres	Puerto Rico Industrial Development Corporation (PRIDCO)	X	X	X	X								
5	117	Guaynalla	18.037764, -66.800622	Quebrada Ward: Former Industrial Site with 7.1 Acres	Puerto Rico Industrial Development Corporation (PRIDCO)	X	X	X	X								
5	118	Ponce	17.984468, -66.672409	Clean Debris (El Tuque): Raw Land with 15 Acres	Cantera El Tuque Inc.		X	X	X				X	X	X		
6	119	Salinas	18.016482, -66.259791	Camp Santiago Army Site: Formerly used as debris collection and Processing site with over 100 Acres	Federal Government	X	X	X	X				X	X	X		
6	120	Guayama	17.953313, -66.158954	Jobos Ward: Industrial Site with 10.0 Acres	Puerto Rico Industrial Development Corporation (PRIDCO)	X	X	X	X			X					

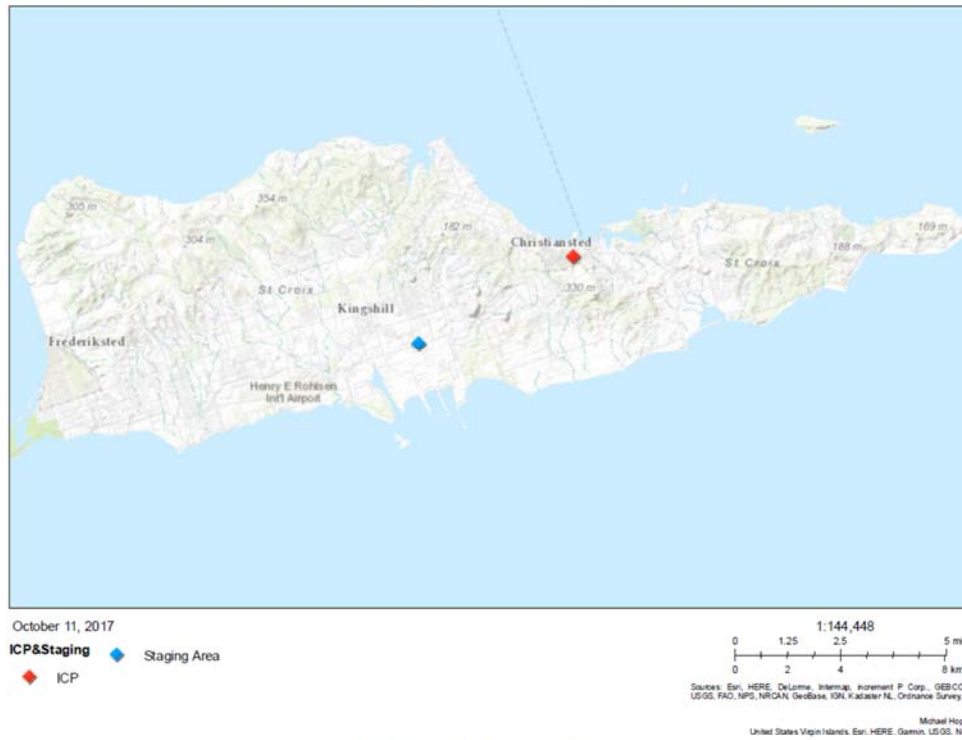
- The following are the proposed initial staging areas identified on Puerto Rico. These sites may change as the debris management plan is implemented.



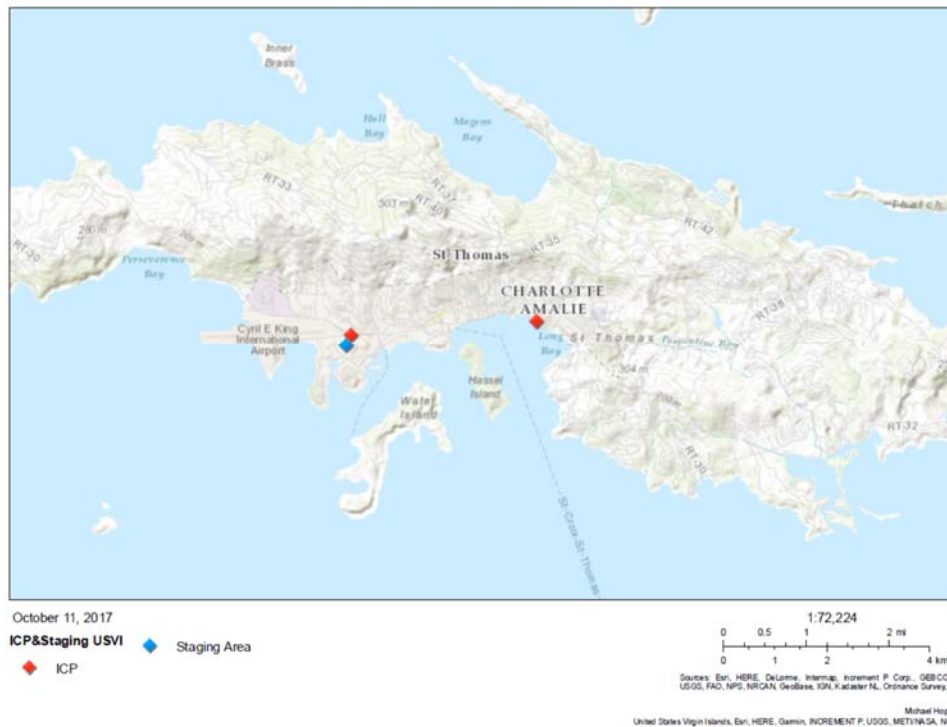
USVI Debris Mission.

The EPA Deputy RIC for the U.S. Virgin Islands (USVI) and Incident Commander/Operations Section Chiefs have separated the USVI into three incident areas by island; St. Croix, St. Thomas, and St. John. EPA and contractor resources are currently deployed in St. Croix and St. Thomas. EPA responders are performing assessments on St. John. Below are the locations of our Incident Command Posts (ICP) and hazardous waste/debris staging areas on STX and STT.

St Croix ICP and Staging



St Thomas ICP and Staging



- EPA has been requested to assist with the handling and disposal of HHW, medical waste and e-waste. EPA will also assist with the preparation of white goods for recycling by VIWMA. EPA is waiting for DPNR to issue permits for the HHW staging location on STX and waiting for DPNR to

identify a staging location on STT.

- HHW - A letter to DPNR requesting a permit for HHW staging at former Evelyn Williams school was sent to DPNR Commissioner Henry with paper copies delivered to VIWMA. EPA and partner agencies have not yet received a response from DPNR on this permit request.
- Medical waste - One prospective vendor submitted a bid for the disposal of med waste. EPA response contractor is processing a bid award for subcontracting medical waste disposal for EPA Contracting Officer approval, which is anticipated 10/20. Operations could begin by 10/23.
- USACE has requested EPA assistance with air monitoring during the USACE's air curtain burning of vegetative debris activities should the burn take place. USACE intends to segregate construction and demolition (C&D) debris prior to burn operations. The C&D debris will be handled by VIWMA. The VI government is allowing the vegetative debris burning option to continue within the debris management planning. EPA was informed burn activities will happen on all three islands, pending official Territorial approval.

AIR MONITORING

Puerto Rico. EQB is planning to conduct an assessment on the conditions of the ambient air monitoring network. The network was taken offline prior to Hurricane Maria landfall. There is no update or information on the status or damages. They will staff an assessment team once their employees are able to return to the office.

Virgin Islands. A final report of assessment activities of air monitoring in schools was sent to VITEMA, VI Department of Education, and members of the St. Croix Schools Task Force. Although recommendations were made to test for potential asbestos containing material and to take standard precautions to protect workers from exposure to mold and dust, no air monitoring was deemed as necessary.

EMERGENCY RESPONSE

Daily/Cumulative Summary of Hazard Evaluations/Recovery for Hurricane Maria				
Status	Opened		Closed	
	10/18/2017	Cumulative	10/18/2017	Cumulative
Puerto Rico	0	0	0	0
8U.S. Virgin Islands	0	10	0	0
Note: Open means that the target is yet to be recovered. Closed means the target was recovered, left in place, or access was denied to collect the item.				

PUERTO RICO

	CONTAINERS	
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				TOTAL
	Drums (55 Gals)	Large Containers (<55 gals)	Large Containers (>55 gals)	
10/18/2017	0	0	0	0
Total to Date	0	0	0	0

U.S. VIRGIN ISLANDS

	CONTAINERS			TOTAL
	Drums (55 Gals)	Large Containers (<55 gals)	Large Containers (>55 gals)	
10/18/2017	0	0	0	0
Total to Date	0	0	0	0

SPILL/RELEASE RESPONSE

Hotline Calls as of October 19, 2017	
Number of Maria Related Calls Received During Reporting Period	0
Total Number of Maria Related Calls to Date	13
* EPA is assessing each call through the NRC to determine appropriate response and forwarding reports to field personnel to conduct further assessments and response as needed.	

SUPERFUND NPL, SUPERFUND REMOVAL, AND OIL REMOVAL SITES

EPA personnel continue to conduct preliminary assessments at Superfund or Oil Response Sites in Puerto Rico and evaluate the potential off-site impacts as a result of Hurricane Maria. The REOC is currently following up with the RPMs for each site.

Dorado.

- At the Dorado Groundwater Superfund Site, PRASA has stationed a private security firm at wells 2, 4, 5 & 6 to mitigate access by the local community. As before, the USACE is providing two water trucks for distribution to the community, and the FBI continues to drop off pallets of bottled water at well 4. Public water service to the homes beginning to improve in Dorado.

- **Sample Results.** Validated data for the chemistry will be available on 10/20. Preliminary results confirm what we previously believed, which is that no water is being produced or drawn from Wells #2, 4 and 6; these are the wells that are known to be contaminated with PCE and TCE. The spigots near these wells, which were used by some residents to draw water, are *not* drawing water from those wells; rather, they are receiving water through the PRASA distribution system. Preliminary results for the Santa Rosa well, which *is* used by PRASA to produce drinking water (at least occasionally) indicate that PCE is present in trace quantities, but well within Safe Drinking Water Act limits. Additional samples will be taken from these wells and spigots for further analysis, including for the presence of chlorine at the spigots near Wells #2, 4 and 6. EPA staff smelled chlorine when taking previous samples; the presence of chlorine is further confirmation that the spigots near these wells are receiving finished water through the PRASA system, and not groundwater from the wells themselves. (Note: on 10/19 CNN published a news story stating that it had taken samples that were analyzed independently and found to be safe for consumption.)



Hurricane Contingency Site Summary (Remedial, Removal and Oil)**

as of October 13 2017

Site	State	Type *	Phase 1 Post-storm Assessment	Phase 2 Site Inspection	Inspected	Phase 3 Additional Response Action	All Phases Completed
Puerto Rico							
Atlantic Fleet Weapons Training Area (Vie)	PR	NPL					
Barceloneta Landfill	PR	NPL					
Battery Recycling Co. (Puerto Rico Batter	PR	NPL & Removal &	9/22/2017	N	N/A	N	9/22/2017
Cabo Rojo Groundwater Contamination	PR	NPL					
Cidra Groundwater Contamination	PR	NPL	10/5/2017	N	N/A	N	10/5/2017
Corozal Well	PR	NPL & Removal	9/24/2017	N	N/A	N	9/24/2017
Culebra****	PR	Other					
Dorado Groundwater Contamination, Dora	PR	NPL	10/12/2017	Y			
Fibers Public Supply Wells	PR	NPL	10/5/2017	Y			
Fort Buchanan	PR	Other	10/6/2017	N	N/A	N	10/6/2017
Frontera Creek	PR	NPL	10/5/2017	N	N/A	N	10/5/2017
GE Wiring Devices	PR	NPL	10/6/2017	Y			
Guaynilla Bay Oil Spill***	PR	Oil	10/6/2017	Y			
Hormigas Groundwater Plume***	PR	NPL	10/6/2017	Y			
Janssen, Inc.	PR	Other	10/6/2017	N	N/A	N	10/6/2017
Juncos Landfill	PR	NPL	9/30/2017	Y	10/5/2017	N	10/5/2017
Maunabo Urbano Public Wells	PR	NPL	10/12/2017	N	N/A	N	10/12/2017
Naval Security Group Activity	PR	NPL	10/6/2017	N	N/A	N	10/6/2017
Papelera Puertorriquena	PR	NPL	9/29/2017	N	N/A	N	9/29/2017
Pesticide Warehouse 1	PR	NPL	10/4/2017	Y			
Pesticide Warehouse 3	PR	NPL	10/4/2017	Y			
Prepa Palo Seco General Depot	PR	Other	10/12/2017	N	N/A	N	10/12/2017
Puerto Rico Olefins	PR	Other	10/11/2017	Y			
Puma Caribe (CAPECO)	PR	Oil	9/21/2017	N	N/A	N	9/21/2017
RCA Del Caribe	PR	NPL	10/12/2017	N	N/A	N	10/12/2017
San German Groundwater Contamination	PR	NPL	10/12/2017	Y			
Scorpio Recycling Inc.***	PR	NPL	10/5/2017	Y			
U.S. Naval Station	PR	Other	10/6/2017	N	N/A	N	10/6/2017
Upjohn Facility***	PR	NPL	9/30/2017	Y			
V&M Albaladejo	PR	NPL	10/12/2017	N	N/A	N	10/12/2017
Vega Alta Public Supply Wells***	PR	NPL	9/30/2017	Y			
Vega Baja Solid Waste Disposal	PR	NPL	10/4/2017	N	N/A	N	10/4/2017
USVI							
Cruz Bay Oil Tank	VI	Oil	10/9/2017	Y	10/11/2017	Y	
Island Chemical Corp./Virgin Islands Chem	VI	NPL	10/5/2017	N	N/A	N	10/5/2017
Krum Bay Oil Spill at WAPA Facility	VI	Oil	10/11/2017	N	N/A	N	10/11/2017
Tutu Wellfield***	VI	NPL	10/3/2017	Y			

* NPL and/or Removal/ and/or Oil - sites that have both active Remedial, Removal and/or Oil Program components

Other - sites are either Federal facilities, Superfund Alternative Sites or that are otherwise being managed by the Remedial Program

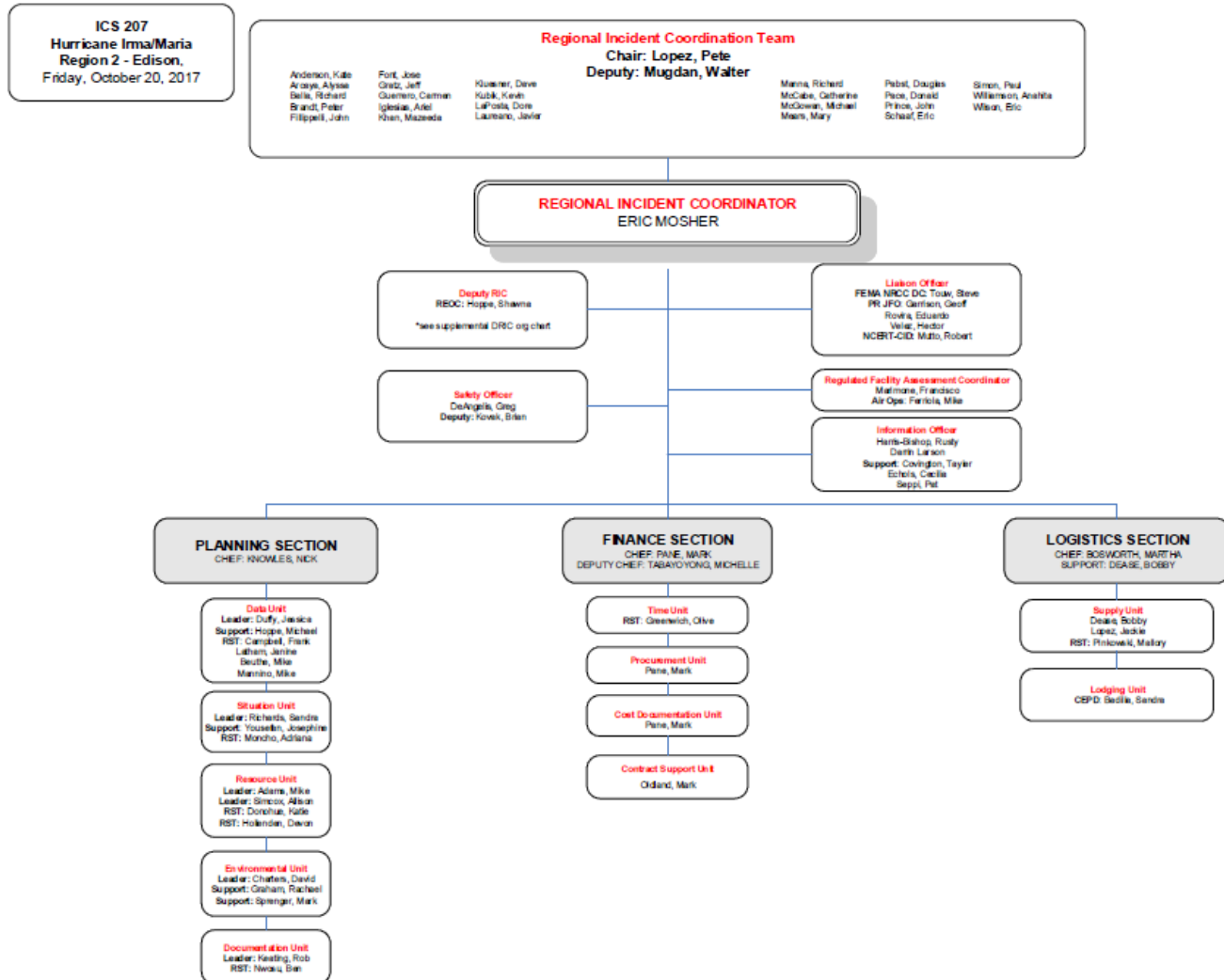
** Only includes active removal and oil sites

***ERRD/RPM/CEPD reviewing Phase 1 Post Storm Assessment to determine if Phase 2 Site Inspection is warranted

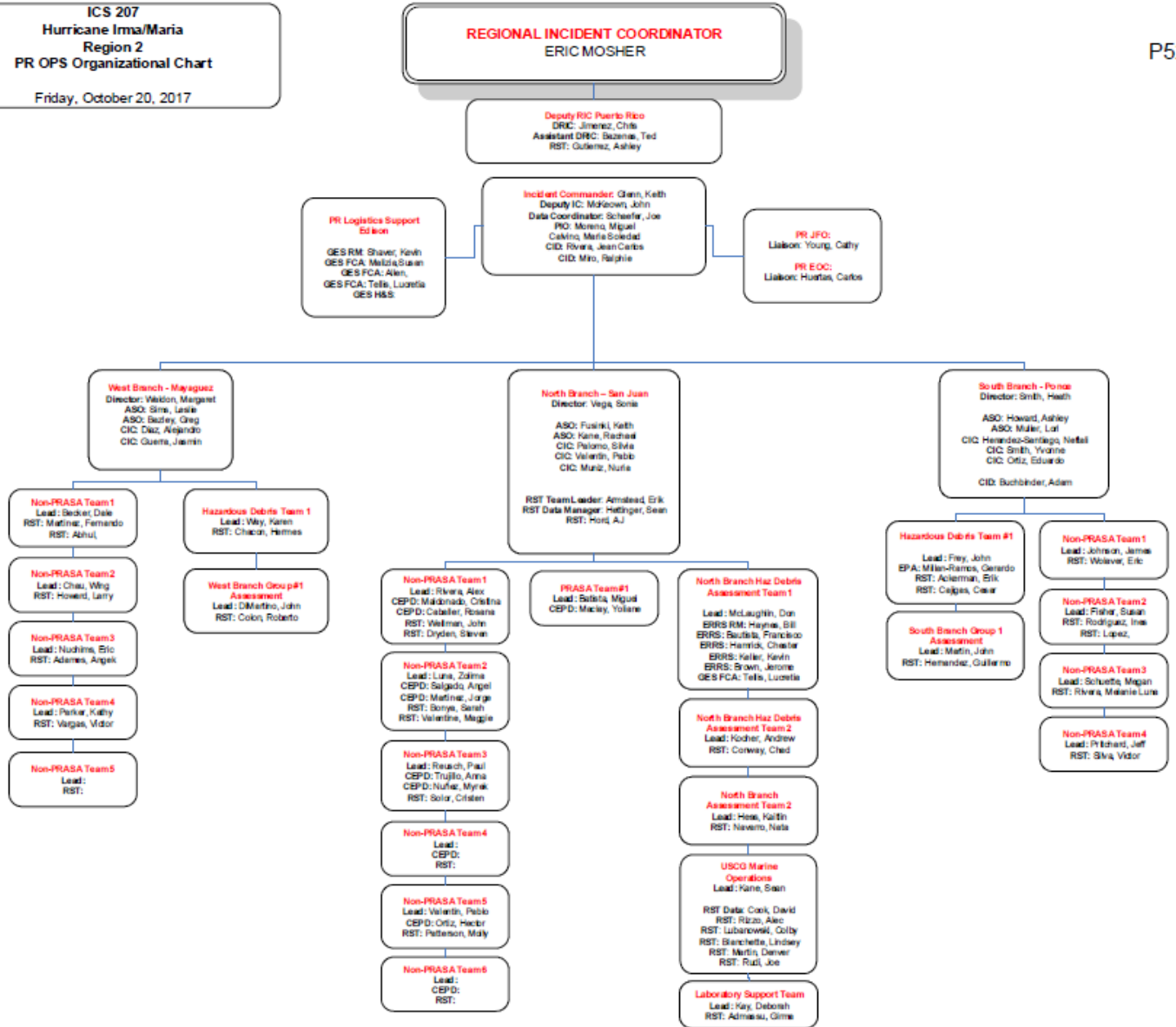
****Federal Facility Lead for Assessment

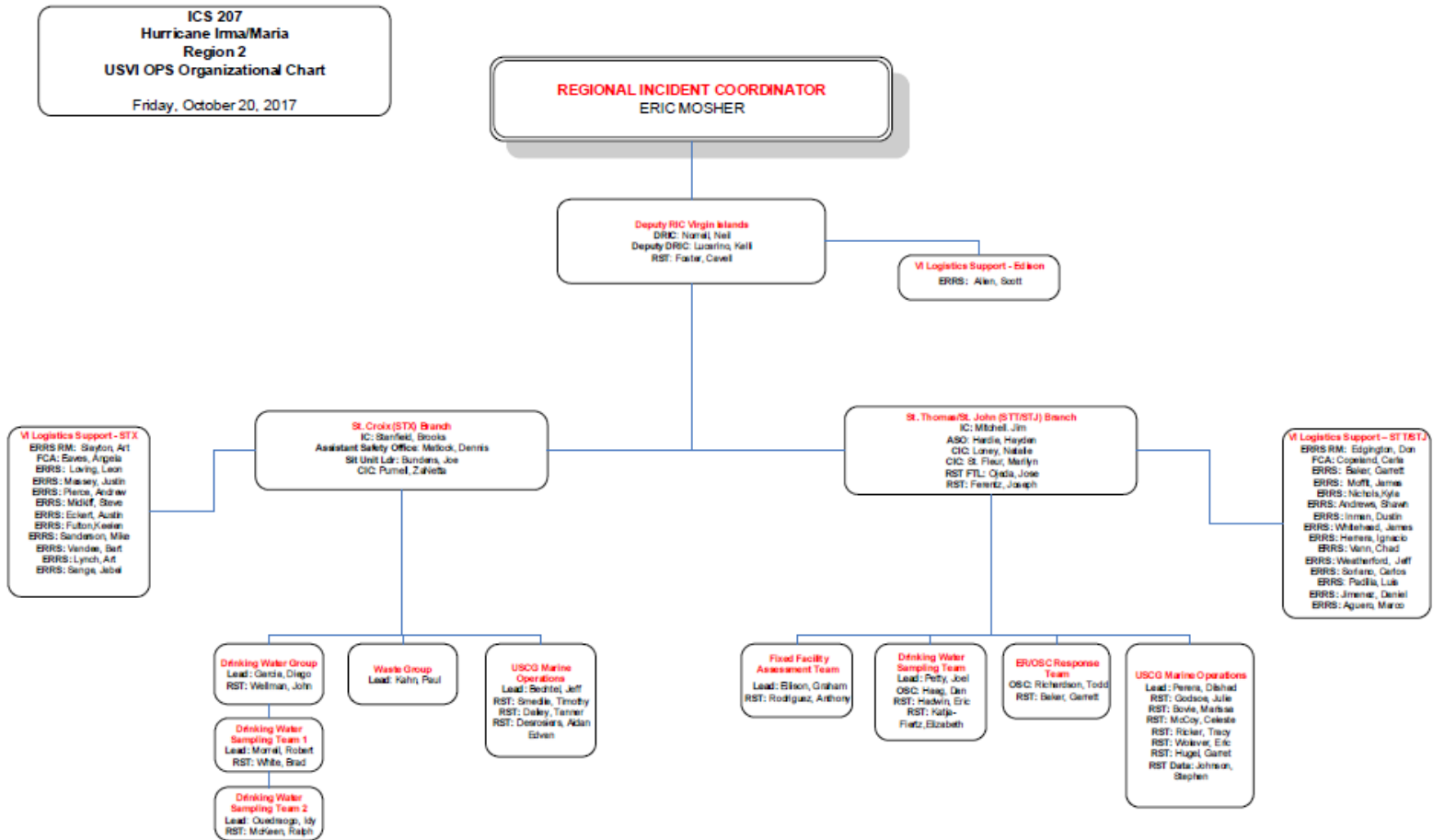
All Phases Completed

REGION 2 RESPONSE ORGANIZATION (ICS 207)



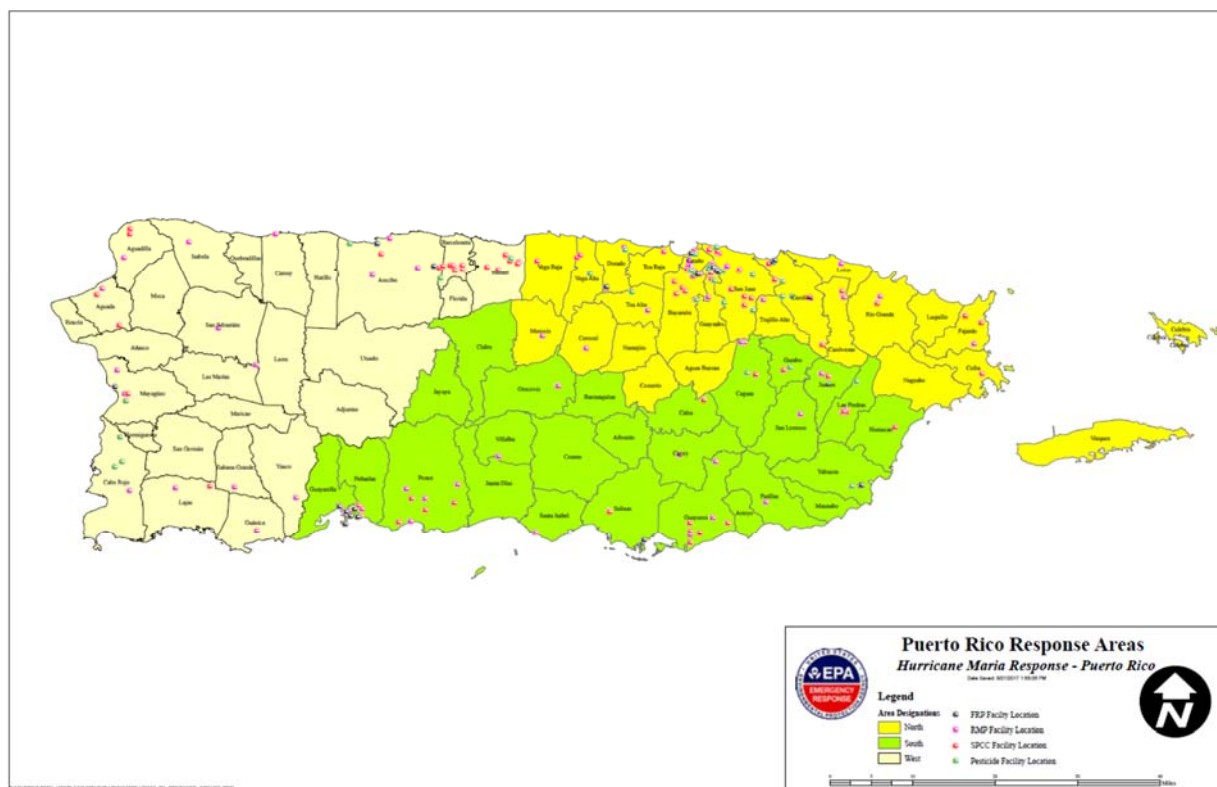
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FIELD RESPONSE ACTIVITIES

PUERTO RICO



- The EPA Deputy RIC for Puerto Rico and Incident Commander/Operations Section Chief has separated Puerto Rico into three Branches; the North Branch, South Branch, West Branch, Marine Operations with USCG; and CID security support. A PIO Coordinator is supporting Incident Command. Additional personnel, both EPA and contractors, continue to mobilize to PR in support of the mission assignments. The IC is coordinating with the USCG for Marine Operations and hazardous material response related to sunken vessel recovery.
- **Deputy Regional Incident Coordinator (DRIC)-PR**
 - The RIC and DRIC-PR have been actively coordinating with the Environmental Unit, PRDOH and PRASA regarding the analytical laboratory services available in Puerto Rico. Two DESA personnel are in PR and are conducting follow up visits at PRDOH and PRASA facilities to assess their operating status and analytical services. Additionally, DESA is conducting assessments at commercial laboratories to document their operational status. **A final report and spreadsheet of their findings has been prepared.** There is a FEMA Mission Assignment in place to assist with funding the PRASA and PRDOH labs with needed repairs, equipment and personnel to come back into service.
 - **On 10/20 a conference call was held that included representatives from**

PRDOH, PREQB, CDC and EPA. As a result of the call it was determined that CDC will be engaging with PRDOH for the refurbishment of their lab in Caguas under ESF #8 and EPA will coordinate with EQB for the refurbishment of their lab in Bayamon. EPA will also replenish, supplies, standards and reagents for both labs.

- The DRIC-PR is developing a communication strategy to improve coordination with the JFO, EPA Region 2 and CEPD to be implemented over the next few operational periods.
- The EPA Emergency and Rapid Response Services (ERRS) contractor is planning to ship necessary equipment to support the debris MAs, using a FEMA transport. Transport of equipment to Puerto Rico is expected to depart from Charleston, SC on or about 10/23/17. A staging area at the US Army Garrison - Ft. Buchanan, in Guaynabo, has been secured for the eventual staging of this equipment. This location will be used to stage equipment and will not be a hazardous materials/waste staging area. Additional personnel, both EPA and contractors, continue to mobilize to Puerto Rico.

- **Incident Command**

- The Puerto Rico Incident Commander is coordinating with the CEPD Water Inspectors, Remedial and RCRA staff on site and facility assessments. The IC continues to coordinate with EPA/CID for security support. A PIO Coordinator is supporting Incident Command. The IC is coordinating with the USCG for Marine Operations and hazardous material response related to sunken vessel recovery.
- EPA continues to coordinate with the US Army Corp of Engineers in support of EPA's hazardous materials removal operations Mission Assignment. USACE is currently completing the permit process for several locations for debris collection staging areas. EPA plans to co-locate hazardous material staging areas at all identified staging locations. Until USACE's areas are identified, EPA is coordinating with EQB to establish a temporary hazardous materials staging area. EPA is conducting Site visits with USACE and EQB at the purposed USACE staging areas, as well municipal collection areas.
- Quick response teams consisting of OSCs, CEPD, CID, and RSC contractors are prepared to investigate reports of hazardous chemical releases and any other relevant incidents.

- **All PR Branches**

- The Puerto Rico Department of State (PRDOS) is planning on integrating personnel into the non-PRASA assessment teams. The PRDOS team mission is to document conditions in the communities served by non-PRASA wells where EPA teams are conducting assessments, and to initiate distribution of water and

food rations. The PRDOS teams will report needs of the community directly to FEMA at the IOF in San Juan. This mission is being coordinated in the JFO in San Juan but has not yet been implemented as yet. As PRDOS teams ramp up to deploy, PRDOJ has also expressed an interest in supporting this effort. NGOs are currently fulfilling the mission and PR DOS/DOJ are scheduled to join on 10/23.

- The IC and Deputy IC met with the PR EQB to coordinate debris collection issues.

- **NOTE: Due to communications issues in Puerto Rico, no updates were received. The information below is based on work planned for 10/18/17.**

- **North Branch**

- On 10/18/17, planned work included scoping new HHW staging/collection areas at locations in Toa Baja identified by CEPD, fixed facilities assessments in Bayamon, and CEPD supported assessments at non-PRASA drinking water and wastewater facilities.
- Private security (PRASA funded) was continued at the Dorado Groundwater Superfund Site, PRASA has stationed a private security firm at wells 2, 4, 5 & 6 to mitigate access by the local community. USACE is continuing to provide two water trucks for distribution of potable water to the community. FBI dropped off more pallets of bottled water at well 4. It has been reported that public water service to the homes is beginning to improve in Dorado.
- EPA continued to assist US Coast Guard with abandoned vessel identification.

- **South Branch**

- Activities planned for 10/18/17, assessment of non-PRASA drinking water in Penuelas. The Hazardous Debris Assessment Team will continue to assess locations in Humacao, Yabacoa and Maunabo. Additional fixed facility assessments were planned at sites in Guayama.
- The South Branch is coordinating with FEMA at their Branch 4 complex in Ponce to set up ESF 10 area in the ICP.

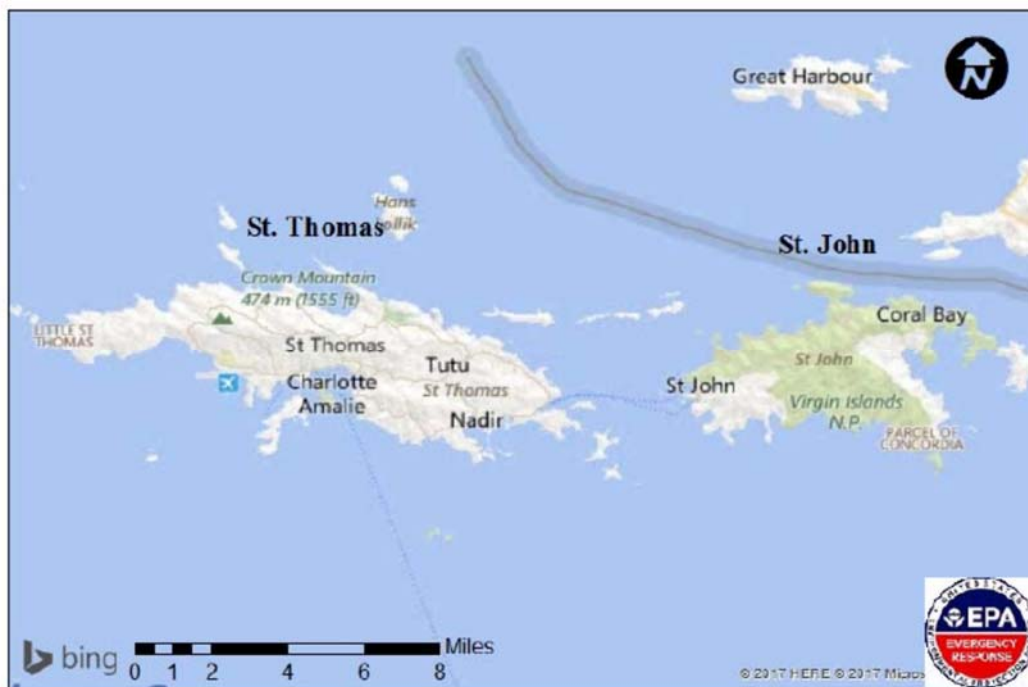
- **West Branch**

- On 10/17/17, the West Branch planned activities included continued coordination with USACE on Debris Management staging area locations in Mayaguez. Fixed Facilities team planned to complete assessments in Mayaguez and non-PRASA drinking water facilities in Mayaguez were scheduled for assessment.

- Dangerous driving conditions continue due to the heavy rainfall. Closed roads may be limit future assessments. The ASO recommends that any travel in the mountainous areas be conducted early in the day due to afternoon rain and thunderstorms.
- **Vieques and Culebra Islands**
 - An assessment team is scheduled to visit the island early next week to collect data on the status of the drinking water and waste water systems on the Island.
- **EPA Criminal Investigation Division**
 - CID has re-assessed their PR staffing plan and with concurrence from the RIC, all out-of-region CID agents will be demobilizing from Puerto Rico by 10/23. CID will maintain their normal compliment of two agents on PR. These agents will be available for security details on request of the IC. Additional agents will be mobilized to PR on an as-needed basis.
- **USCG Marine Operations**
 - USCG/EPA coordination is taking place through USCG IC and EPA OSC. Marine teams conducted assessments along the coast, including the Island of Culebra. Any waste (such as oiled sorbent boom) generated during vessel ops is being managed through the USCG Oil Spill Response Organization (OSRO) already under contract for Puerto Rico. USCG has tentatively identified 266 sunken vessels as initial targets for assessment. Data is reported on the EPA Viewer.
- **Critical Resources Needs/Issues:**
 - As the number of personnel and the diversity of the missions expands, the R2 REOC and the PR IC are considering expanding the ICS structure in PR. The Branch Directors and the IC are sending their proposed staffing needs to the R2 REOC for consideration.
 - Commercial air traffic to PR and remains limited but is improving; however, several flights have been delayed for several hours, causing some logistical problems in San Juan. In addition, hotel accommodations are limited, sometimes necessitating double rooming.
 - The unavailability of equipment or transportation capacity to date has seriously impacted and delayed EPA's efforts to perform the hazardous waste and debris cleanup components of the FEMA mission assignments. There have been significant difficulties in scheduling barge space to transport equipment from CONUS. The EPA and the ERRS contractor are working through FEMA at the NRCC to secure space on the transport barges.

- Electric utilities are intermittent throughout the Commonwealth. Fuel to run generators is becoming scarce, Additional generators are needed to support critical infrastructure.
- Cellular communications and internet connectivity intermittent in most areas of PR, making communication with the field teams difficult, though recent progress has been observed. However, in the West Branch and the South Branch, communications are poor at best. There is a critical need to improve service for internet and cell phone communications. The R2 REOC is coordinating the deployment of satellite sleds to each of the three branches. It is expected that the buildup of FEMA operations in these areas will precipitate cell tower repairs.
- Dangerous driving conditions are evident in many of the mountainous areas of PR due to the excessive rain and denuded hillsides. Health and Safety identified USGS data with satellite imagery that locates many of the recent mudslides. This data is being added to the EPA Viewer.

U.S. VIRGIN ISLANDS





- **STX:**

- EPA continues to coordinate with the USCG on supporting vessel recovery operations.
- Personnel visited the Tamarind Reef Hotel and viewed six deteriorated drums of waste oil and approximately 50 gallons of free-flowing waste oil inside small containment basins. Oil will be retrieved once the HHW staging area is operational.
- Personnel from ESF-8 team informed EPA that their people on St. Croix had seen liquid coming from the med waste cache at the Juan Luis Hospital. EPA investigated these reports and confirmed that there were no releases from the Juan Luis hospital medical waste storage area.
- Food waste – EPA met with Department of Education contact at the CETC wing of the Educational Complex to evaluate two large walk-in freezers and 5 smaller, kitchen type freezers with rotten food. VIWMA committed to drop 20-yard roll-off dumpster at the site to for bagged wastes.
- EPA ERRS contractor procured a method for shipping of materials and equipment to the USVI. The materials and equipment were shipped via barge from Fort Lauderdale, Florida and arrived Wednesday, October 18, 2017 on STX. Currently, the USVI Government is requiring all entities shipping equipment to the territory in support of the hurricane relief efforts to pay an excise tax, however FEMA has stated the payment of this tax is not required and may not be reimbursed to any agency who pays it. EPA is working with FEMA to resolve the matter in order to have the equipment released.



Conducting a FRP Inspection at the Henry Rohlsen Airport in St. Croix

- **STT/STJ:**
 - The STT/SJT IC spends portions of each day at the Virgin Island Territorial Emergency Management Agency (VITEMA) office and at the United States Coast Guard (USCG) Incident Command Post (ICP) that supports Boat Recovery Operations. The VITEMA office serves as the EOC for the federal and territorial Emergency Support Functions (ESF). Daily ESF briefings are at 0730 and cover operations occurring for that day. The EPA Field Office in St. Thomas will soon support the IC, Community Involvement Coordinators (CICs), and logistics for move/demove of response staff supporting EPA response activities.
 - The USCG ICP serves USCG, EPA, Response Support Team (RST), and ERRS, and an office has been provided for the USVI DPNR.
 - Sampling and assessment teams continue to meet daily at the Oceans Systems Laboratory for a daily briefing and work with laboratory staff and DPNR to identify sampling locations.
 - EPA continued the assessment of EPA regulated facilities.

- EPA continues to coordinate with the USCG on supporting vessel recovery operations.

USCG Marine Operations

• Data Management

- EPA support contractors continued inputting the vessel assessment info into Response Manager database.
- One land based vessel assessment team composed of EPA support contractors/RST, DPNR and USCG was deployed today. One team of RST, DPNR and USCG flew the coastline in a helicopter to try and spot sunken vessels not previously discovered to date. Another overflight is scheduled for Friday.

• Outreach and Communications

- DPNR is compiling a list of owners of the distressed vessels based upon their initial assessments. Owners will be notified by phone, by certified letter and by public service announcements that their vessel needs to be removed. USCG has provided administrative personnel to assist with these notifications. RST continued entering this data into Response Manager.
- DPNR continued to receive notifications from vessel owners who are indicating whether they want their vessel or will waive their right to it.
- The USVI PIO is finalizing a public service announcement which should be issued this week sometime advising owners of sunken or grounded boats that they need to remove them by the deadline or the USCG will remove them.
- The hard date is December 1st after which all distressed vessels will be removed. Time is provided to vessel owners to address the recovery of their property and work through insurance issues.

• Response Actions and Issues

- USCG will contract either National Response Corp (NRS) and/or Resolve Maritime to remove fuels, batteries and gray/black water from vessels.
- EPA will be handling all materials once they are brought to shore for disposal. EPA will remove HHW from the vessels once they are in the laydown area.
- EPA needs to speak with WAPA about dewatering the recovered fuels.

- EPA met with the seaplane operator to discuss the planned use of a barge mounted crane to lay vessels on shore near the seaplane flight path. All parties will work together to ensure safe smooth operations.
- **Critical Resource Needs/Issues:** Although commercial air traffic to the USVI has increased, flights to and from the islands remain limited. This is making transport of personnel and equipment needed to support the missions assigned and requested of EPA difficult. Fuel to run generators is becoming scarce and additional generators are needed to support critical infrastructure. Cellular communications and internet connectivity on all islands remains intermittent, making communication with the field teams difficult. Driving conditions remain hazardous due to downed power poles/lines and power outages causing a lack of traffic signals making travel around the islands difficult and time- consuming. EPA needs a determination from FEMA regarding the payment of excise tax to the USVI in order to have ERRS equipment released.



Marine operations assessing sunken or damaged vessels in Benner Bay, St. Thomas



Additional marine operations in Compass Point, St. Thomas.

REGION 2 REGIONAL EMERGENCY OPERATIONS CENTER (REOC)

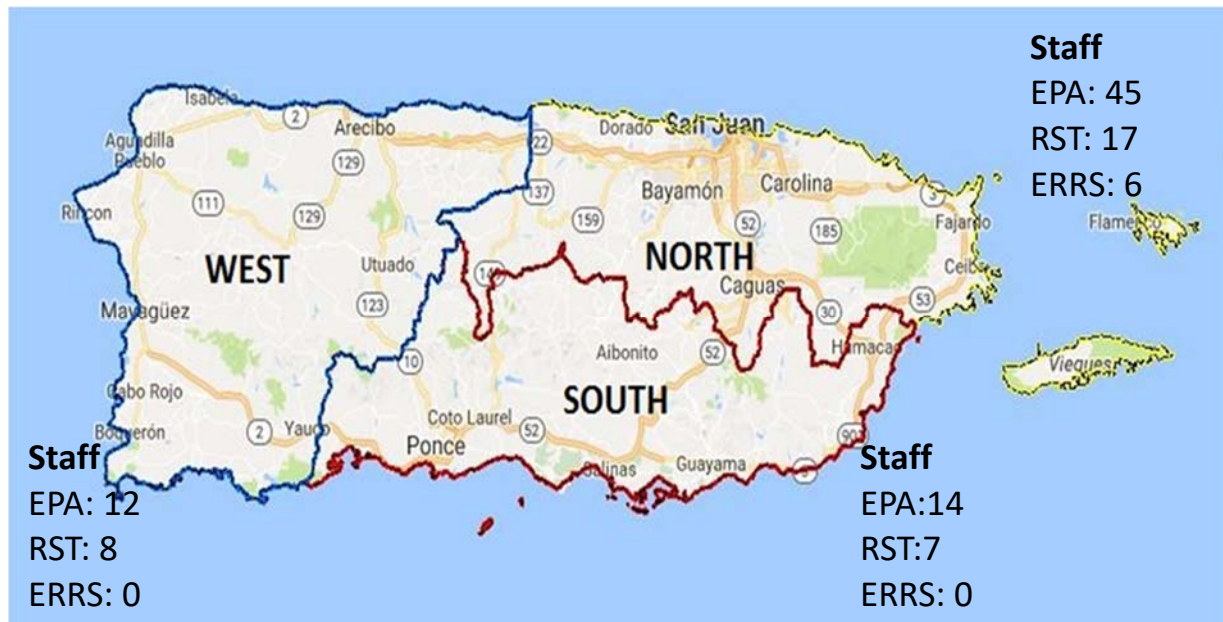
- The RICT remains fully engaged in the response with senior meetings and briefings conducted daily. The DRIC continues to develop mobilization and staffing plans to support upcoming operations in support of FEMA Mission Assignments for Operational Support, Assessment Direct Federal Assistance Cleanup and Drinking Water/Waste Water assessment and support in Puerto Rico and the U.S. Virgin Islands.
- Resource orders have been entered into the WebEOC Personnel Resource Log for a mobilization of an additional personnel. Field operation continue to staff up to a full operation status. As above, resources such as lodging/berthing and air transportation are limiting factors.

EPA RESOURCES AS OF 10/19/2017

Personnel	EPA Edison, NJ NYC	FEMA NRCC, DC	San Juan, Puerto Rico*	Mayaguez, Puerto Rico	Ponce, Puerto Rico	St. Croix USVI*	St. Thomas/St. John USVI*	Totals
EPA	73	1	21	12	12	9	9	137
CEPD (EPA)	0	0	24	0	2	0	1	27
START/RST	15	0	17	8	7	5	13	65

ERRS	8	0	6	0	0	12	15	42
Totals	96	1	68	20	21	26	38	270

- *Number includes personnel working at JFO, EOC.
- ^Number includes Coast Guard personnel working directly with EPA.



AGENCY COORDINATION

- Region 2 has one rep staffing the ESF-10 desk in the FEMA NRCC in Washington D.C. EPA will be staffing an IC and a liaison officer in the VITEMA/FEMA EOC St. Croix. There is two OSCs, a liaison officer, and one PIO in the FEMA JFO in San Juan. Additionally, there is one OSC staffing the PREMA/FEMA EOC in San Juan.

- Environmental Response Management Application (ERMA). NOAA supports an ERMA viewer for both EPA Region 2 and the U.S Coast Guard. Aerial photos are available through the following link.

<https://erma.noaa.gov/caribbean/erma.html#/layers=3+36619+36620+36611+36618&x=-65.62791&y=18.14726&z=9&panel=layer>

DRINKING WATER / WASTEWATER

Puerto Rico Facility Assessment Summary

Drinking Water and Wastewater Assessments (October 18, 2017)		
Assessment Types	Daily Assessments	Total Assessments
On-Site DW Assessments	24	121
On-Site WW Assessments	18	166

Puerto Rico Drinking Water Status

- **PRASA** – PRASA reports that **28.5%** of clients are without drinking water service.
- 43 of the 115 drinking water treatment plants (WTPs) operated by PRASA are out of service.
- 72 WTPs are working on alternate power or primary power.
- 28.5% of the population are without drinking water services.
- The plants that are out of services are because lack of primary power, lack of diesel, operational problems or clogged intakes.
- List of Plants out of service:
 1. Caguas Sur (4.75 MGD) – Due to recent rain events, raw water intake was clogged.
 2. Gurabo Nueva (4.0 MGD) - Due to recent rain events, raw water intake was clogged.
 3. Barrancas (0.55 MGD) - Raw water intake out of service.
 4. Barranquitas Urbano (0.7 MGD) - Due to recent rain events, raw water intake was clogged.
 5. Las Bocas (1.0 MGD) – Alternate Power Unit out of service.
 6. Cayey Urbano (3.5 MGD) – Raw water intake out of service.
 7. Culebras Alto (0.33 MGD) - Alternate Power Unit out of service.
 8. Comerio Rio Hondo (3.0 MGD) - Due to recent rain events, raw water intake was clogged.
 9. Humacao Las Piedras (6.0 MGD) - Due to recent rain events, raw water intake was clogged.

10. Juncos Urbano (2.0 MGD) – Polimer pump out of service.
11. Canovanas (10 MGD) – Alternate Power Unit out of service.
12. Guzman Arriba (1.0 MGD) – Raw water intake pipe broken.
13. Arecibo Urbano (1.5 MGD) - Alternate Power Unit out of service.
14. Esperanza (0.5 MGD) - Alternate Power Unit out of service.
15. Rio Arriba (0.25 MGD) - Raw Water Intake collapsed.
16. Quebrada (2.0 MGD) – Raw Water Pump Station out of service.
17. Canalizo (0.14 MGD) – Alternate Power Unit out of service.
18. Mameyes Arriba (0.43 MGD) –Alternate Power Unit out of service.
19. Lares Nueva (4.0 MGD) – Alternate Power Unit out of service.
20. Lares Urbano (1.7 MGD) - Raw water pump station Alternate Power Unit out of service.
21. Indiera Alta (0.5 MGD) - Raw water pump station flooded.
22. Mameyes Abajo (0.22) - Raw water pump station Alternate Power Unit out of service.
23. Santa Isabel (1.0 MGD) - Raw water pump station Alternate Power Unit out of service.
24. Utuado Urbano (3.5 MGD) - Raw water pump station Alternate Power Unit out of service.
25. Fronton (0.25 MGD) - Alternate Power Unit out of service.
26. Jaguas Pesas (0.25 MGD) – Raw water intake alternate power unit out of service.
27. Morovis Norte (0.5 MGD) – Alternate Power Unit out of service.
28. Morovis Sur (4.0 MGD) – Alternate Power Unit out of service.
29. Sanamuerto (0.5 MGD) - Alternate power unit out of service.
30. Almirante Sur (1.0 MGD) – Raw water pump station flooded.
31. Negros (2.5 MGD) - Alternate power unit out of service.
32. Guajataca (2.0 MGD) - Raw Water Supply clogged, being cleaned by DOD.
This should be resolved next week.
33. Isabelita (5.0 MGD) – Operational problems at the facility.
34. Sabana Grande (0.75 MGD) – Raw water intake clogged.
35. Coamo Urbano (1.05 MGD) – Collapsed raw water intake.
36. Matrullas (0.25 MGD) - Alternate Power Unit out of service.
37. Orocovois Urbano (3.3 MGD) – Raw water pipeline collapsed due to recent rain events.
38. Aceituna (2.5 MGD) – High turbidity.
39. Guayama Urbano (6.0 MGD) - Alternate power unit out of service.
40. Lizas (1.0 MGD) - Alternate Power Unit out of service.
41. Guayanes (1.2 MGD) - Alternate power unit out of service.
42. Jaguas Ceiba (0.18MGD) – Raw water intake clogged.
43. Ranchera (0.22 MGD) – Water Distribution pump station is out of service.

- **Non-PRASA Water Treatment Systems:**

Currently working with FEMA, USACE, EPA, and DOH to coordinate federal support to Non-PRASA drinking water facilities. In Puerto Rico, there are 297 independent private and community water treatment systems that serve approximately 4% of the

population. Details of proposed visit schedule for EPA and DOH Assessment Teams was sent to EPA Region 2 Puerto Rico Incident Coordinator.

EPA is working with PRDOH and DOD, HHS and FEMA, in assessing the non-PRASA drinking water systems throughout PR. Such systems provide drinking water from wells and surface water to isolated communities located in rural areas in PR. Deployed teams assess drinking water quality, assess the condition of the systems, and identify other immediate needs (i.e., food, shelter, medical support, etc.). Identified needs are referred to FEMA/PREMA.

Puerto Rico Wastewater Status:

- 10 of the 51 wastewater treatment plants (WWTPs) operated by PRASA are out of service.
- 9 WWTPs are working on primary power.
- Of the 10 WWTPs out of service, 6 are located upstream of a drinking water intake. These facilities are:
 1. Lares (1.2 MGD) – Influent pump station out of service.
 2. Utuado (2.0 MGD) - Main trunk sewer collapsed, no sewage reaching the plant.
 3. Barceloneta (8.3 MGD) – Alternate Power Unit out of service.
 4. Ciales (1.5 MGD) – Main trunk sewer collapsed, no sewage reaching the plant. A contractor is on-site.
 5. Corozal (1.25 MGD) - Main trunk sewer collapsed, no sewage reaching the plant. PRASA already has a contractor on site. It may take two weeks for repairs.
 6. Orocovis (0.5 MGD) – Alternate power unit out of service.
- The remaining 4 WWTPs out of service are:
 1. Barceloneta (8.3 MGD) – Alternate Power Unit out of service.
 2. Dorado (4.05 MGD) – Facility suffered major equipment damages since it was completely flooded
 3. Toa Alta (0.8 MGD) – Plant was flooded, major equipment damages.
 4. Santa Isabel WWTP (5.5 MGD) – Alternate Power Unit out of service but is being repaired.
- The Maricao (0.25 MGD) which main trunk sewer collapsed, is back in service.
- The Comerio (1.0 MGD) which main trunk sewer collapsed, is back in service. The collapsed trunk sewer is being repaired but PRASA is hauling sewage to the plant from a pump station.
- PRASA owns close to 800 sanitary pump stations.

- Today, at least 233 sanitary pump stations are overflowing sewage due to lack of power, malfunctioning power generator or pumping problems.
- Of these 233 pump stations, 92 are located upstream of a water supply intake.
- The biggest concern is the Torrecillas Pump Station, which is tributary to the Carolina WWTP and is the largest pump station in the island. The station, which currently pumps around 25 MGD suffered major damages due to flooding. PREPA was energizing the area to get the pump station back in service and PRASA is trying to obtain a generator from FEMA.

USVI Facility Assessment Summary

Drinking Water and Wastewater Assessments (October 18, 2017)		
Assessment Types	Daily Assessments	Total Assessments
On-Site DW Assessments	27	585
On-Site WW Assessments	0	18

USVI Drinking Water Status

- DPNR plans to initiate a 3-month alternative drinking water monitoring procedure, and will re-evaluate the need to continue at the end of the 3-month period. The monitoring procedure will shift from compliance monitoring to surveillance monitoring, with focus on bacteria and chlorine. The DPNR has not issued a press release yet. When they do, it will be forwarded to DW/WW, then from there forwarded to PAD. Additionally, a boil water advisory will remain in place across the USVI.
- VIWAPA is reporting:
 - The Virgin Islands Water and Power Authority has issued a precautionary boil water notice for potable water customers territory-wide. Due to a drop in water pressure, as a precaution, we advise that all water used for drinking, cooking, making infant formula or juices, making ice, brushing teeth, washing fruits or vegetables and washing dishes, be boiled. Bringing water to a rolling boil and maintaining for one full minute is sufficient. Water must be adequately cooled before it can be used and should be stored in clean, covered containers. As an alternative, bottled water certified for sale by the Department of Health may be used.
 - On St. Thomas, there are six days of emergency water storage. Work continues to restore electrical service to pump stations at Contant Knolls and Savan. Restoration of those pump stations will facilitate the resumption of potable water service in the areas.
 - On St. John, there are two days of emergency water storage on the island with the water distribution system throughout Cruz Bay functioning normally.

- On St. Croix, there are five days of emergency water storage. A faulty motor led to the Concordia pump station being taken off line. Until repairs are completed, customers in mid-island and Frederiksted will experience lower than usual water pressure.
- **Field Reports**
 - **STX:**
 - Drinking water sampling continued in coordination with DPNR. DPNR identified a total of 181 drinking water systems for EPA assistance with sampling. EPA continues to collect samples from these systems.
 - Sample collected are taken to the Ocean Systems Lab on STX for microbial analysis.
 - EPA continues assisting DPNR with notifying the owner/operators of the systems sampled with the results of the samples.
 - EPA presented DPNR with a draft decision-making matrix for review on **Monday, October 16, 2017**. This matrix will help guide EPA's water sampling assistance to the department and define end points for this assistance. EPA is waiting for DPNR to provide a date to have a coordination meeting to discuss the drinking water sampling efforts moving forward.
 - **STT/STJ:**
 - Drinking water sampling activities continue. EPA continues to coordinate drinking water sampling with DPNR. Samples collected are taken to the Ocean Systems Lab on STT for microbial analysis.
 - EPA is continuing to coordinate with DPNR to prioritize drinking water facilities to be assessed and sampled.
 - Staff from the DOH accompanied one EPA sampling team that delivered analytical results to locations that supply potable water to the public that tested positive for **total coliform**.



Collecting a drinking water sample in Nazareth, St. Thomas

USVI Wastewater Status

- VIWMA continues assessments of all waste water facilities. Most facilities assessed to date either need a generator to power the facility or fuel for the facility. All critical needs for the facilities have been relayed to the appropriate ESF. No further action has been requested of EPA at this time.

USVI Drinking Water Laboratory Information

- No update during the reporting period.

REGULATED FACILITIES

Puerto Rico

Facility Type	Field Assessments Completed On 10/18/2017	Field Assessments On 10/18/2017 Requiring Follow-up Action	Total Field Assessments Completed to date	Total # of Facilities to be Assessed
RMP	0	0	81	56
FRP	0	0	29	23
SPCC (non-FRP)	2	0	123	0 *
Total	2	0	233	79

U.S. Virgin Islands

Facility Type	Field Assessments Completed On 10/18/2017	Field Assessments On 10/18/2017 Requiring Follow-up Action	Total Field Assessments Completed to date	Total # of Facilities to be Assessed
RMP	0	0	1	1
FRP	0	0	6	6
SPCC (non-FRP)	1	0	52	0*
Total	1	0	59	7

- * Total number of SPCC facilities assessed is identified by impacted geographic areas.

The Regulated Facility Assessment Coordinator (RFAC) continues to coordinate damage assessment and field assessment referral information with other R2 inspection programs working in UST, Federal Facilities, RCRA, CAA, and NPDES. The UST program remains in touch with DPNR and EQB UST program managers, and continues to provide updates on gas stations in the USVI and PR. The Federal Facilities Coordinator has been following up with federal facilities in PR and the USVI, and is periodically updating the RFAC as appropriate.

LONG RANGE PLANNING

Hurricane Irma Recovery Update:

- **NDRF, Draft EO, and FEMA Recovery Support Function(s):**
 - NDRF activation: The NDRF still has not yet been formally activated in either PR or the VI. The Federal Disaster Recovery Coordinator has been on the ground in Puerto Rico advising the Federal Coordinating Officer and is currently repositioning to advise the Recovery Support Federal Leadership Group, (RSFLG) which is developing cross sector rebuilding cost estimates, in Washington DC.
 - Executive Order: During last Friday's Principals Committee meeting at the White House on a Hurricane Recovery Framework meeting, the Principals agreed to have weekly meetings until a Lead Recovery Official is in place. The topics for this Friday's meeting includes the proposed Executive Order to have a Lead Recovery Official for PR and VI recovery, an Army Corps of Engineers plan for power restoration, and a FEMA document highlighting principles and issues for the PR and VI recovery.
 - EPA is providing input to FEMA briefing materials for the Friday meeting which included proposing the following principles for the PR and VI recovery:
 - Support communities' efforts to plan and rebuild communities, infrastructure and homes to mitigate future vulnerabilities, protect

natural resources, support economic growth, promote the timely completion of recovery projects, and protect human health and the environment. This would include:

- Building communities' capacity to create and implement their visions for recovery and rebuilding.
- Planning for and rebuilding communities, infrastructure and homes to mitigate future vulnerability and promote long term sustainability.
- Rebuilding communities with critical infrastructure interdependencies in mind.
- Revitalizing local economies while attaining better environmental and human health outcomes;
- Providing scientific and technical support.
- Coordinating oversight, federal investments, and permitting per the Agency's UFR commitments.
- Facilitating community involvement in decision-making processes.

○ Recovery Support Functions (RSFs): Region 2 Clean Air & Sustainability Division (CASD) has prepared a staffing plan (both NY and PR staff) for all 6 Recovery Support Functions (RSFs) which include Community Planning & Capacity Building, Economic, Housing, Health & Human Services, Infrastructure, and Natural & Cultural Resources. CASD is hosting a meeting of the regional Recovery Support Functions staff on 10/25 to discuss roles and responsibilities and how they can be integrated into the on-going recovery planning process being led by FEMA out of its DC Headquarters office.

○ Mission Scoping Assessment (MSA) and Recovery Support Strategy (RSS) Planning: FEMA continues to host meetings on Tuesdays and Thursdays to plan for the recovery of PR and VI. Because the efforts on these islands continue to be in response, FEMA is leading the planning from its Headquarters in DC. EPA Region 2, OHS and OW participate in the recovery planning activities. Additionally, EPA has been participating in the EPA is participating in a FEMA led meeting to discuss ideas for incorporating mitigation practices into recovery operations.

- **National Coordination:** The Office of the Administrators' Office of Homeland Security (OHS) and EPA Region 3 (OHS Lead Region) continue to host Thursday afternoon conference calls for EPA Regions 2, 4 and 6 (all regions are invited to participate) to discuss issues and provide advice with HQ program offices. OCFO, Regions 2,4,6 and HQ program offices continue to work on a series of budget

initiatives to support the hurricane recovery efforts.

- **Internal Coordination:** We are coordinating RSF recovery data needs with the regional response team. They have shared with us the EPA Viewer which we have shared with both FEMA and HHS.
- **Emerging Recovery Issues:** Housing that is supported by resilient infrastructure, resilient and affordable power distribution and generation, infrastructure repair, maintenance and resiliency, the need for superfund and brownfields assessments and/or reassessments, workforce development to support recovery (e.g., housing, debris removal) and a more robust long-term economy, long-term disaster debris/solid waste management, technical assistance for better community and mitigation planning as well science and data that can be used for recovery decision-making.
- **Recovery principles:** EPA provided the FEMA lead Recovery Support Function Leadership Group (RSFLG) the following suggestions for Hurricanes Irma and Maria recovery principles:
 - Support communities' efforts to plan and rebuild communities, infrastructure and homes to mitigate future vulnerabilities, protect natural resources, support economic growth, promote the timely completion of recovery projects, and protect human health and the environment. This would include supporting:
 - Building communities' capacity to create and implement their visions for recovery and rebuilding.
 - Plan for, and rebuild communities, infrastructure and homes to mitigate future vulnerability and promote long term sustainability.
 - Rebuild communities with critical infrastructure interdependencies in mind.
 - Revitalizing local economies while attaining better environmental and human health outcomes;
 - Providing scientific and technical support.
 - Coordinating oversight, federal investments, and permitting per the Agency's UFR commitments.
 - Facilitating community involvement in decision-making processes.
- **Topics of Interest from FEMA Daily Reports:** Nothing to report.
- **Other:** Nothing to report.

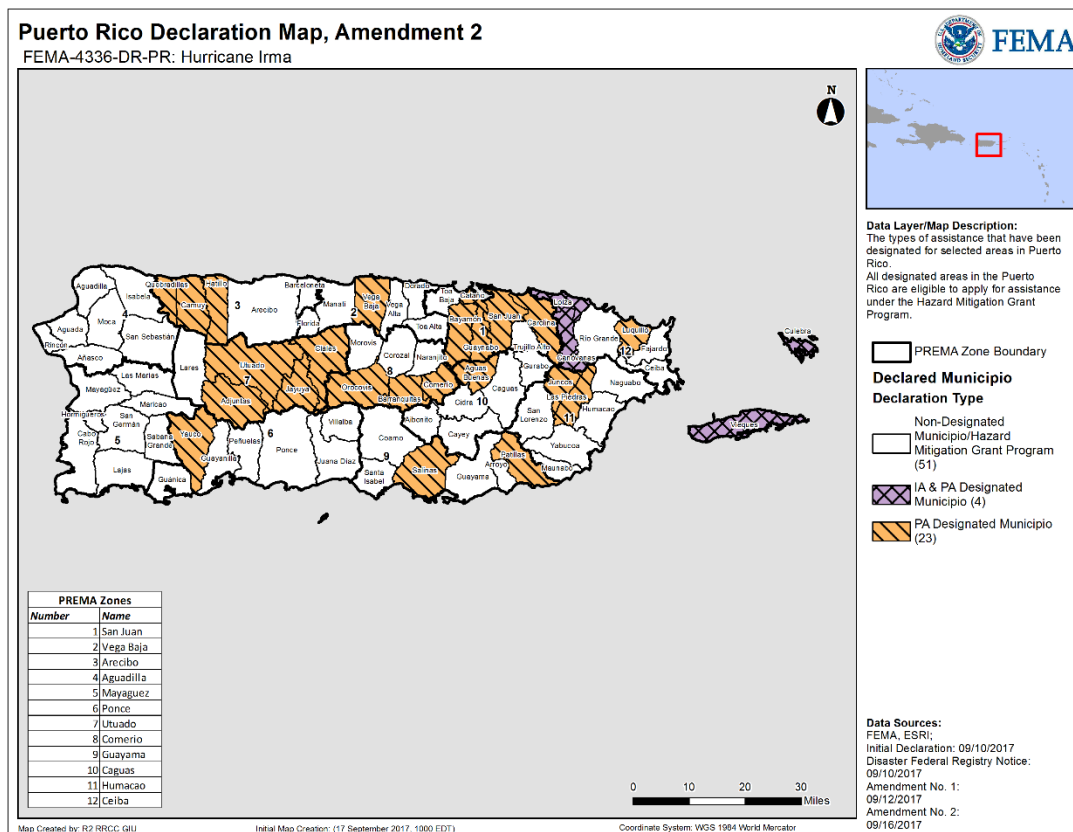
DECLARATIONS FOR HURRICANE IRMA

Puerto Rico.

Emergency Declaration FEMA-3384-EM effective September 5. Assistance is for all 78 municipalities in the Commonwealth of PR. The Governor of Puerto Rico requested a disaster declaration 9/8.

Disaster Declaration FEMA-4336-DR effective September 9. Declared areas only include Culebra and Vieques. On 9/13 ten additional municipalities in Puerto Rico were added to the major declaration, and are now eligible for work under any DFA MA's that we receive. The municipalities are: Adjuntas, Canovanas, Carolina, Guaynabo, Juncos, Loiza, Luquillo, Orocovis, Patillas, and Utuado.

On 9/15, fifteen additional municipalities were added to the major declaration and are now eligible for Public Assistance. The municipalities are: Aguas Buenas, Barranquitas, Bayamón, Camuy, Cataño, Ciales, Comerío, Hatillo, Jayuya, Las Piedras, Quebradillas, Salinas, San Juan, Vega Baja, and Yauco..

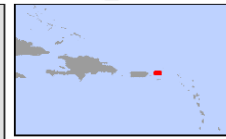
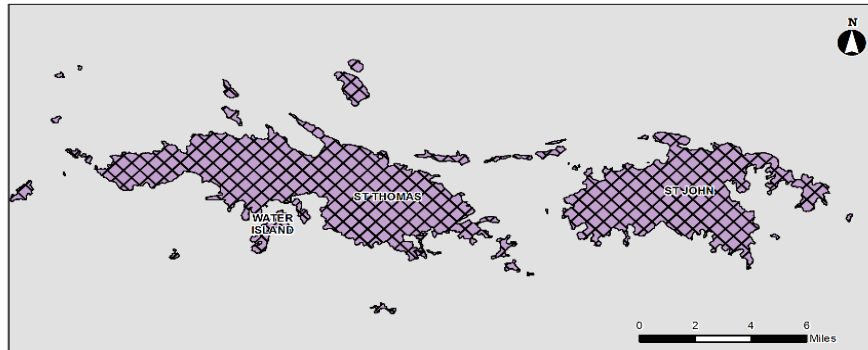


U.S. Virgin Islands.

Disaster Declaration FEMA-4335-DR effective September 7, 2017. St. Thomas and St. John approved for Individual Assistance, all islands eligible for Public Assistance and the Hazard Mitigation Grant Program.

Emergency Declaration FEMA-3383-EM effective September 5. Assistance is for all islands in the Territory of the USVI.

U.S. Virgin Islands Declaration Map (07 September 2017, 1200 EST)
 DR-4335-USVI: Hurricane Irma

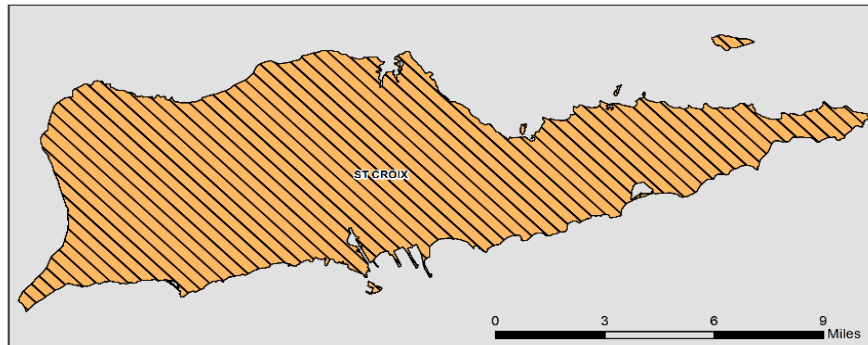


Data Layer/Map Description:
 The types of assistance that have been designated for selected areas in the U.S. Virgin Islands.
 All designated areas in the U.S. Virgin Islands are eligible to apply for assistance under the Hazard Mitigation Grant Program.

County Declared Declaration Type

IA & PA Designated County

PA Designated County (Category A & B and DFA)



Data Sources:
 FEMA, ESRI;
 Initial Declaration: 09/07/2017
 Disaster Federal Registry Notice: 09/07/2017

Map Created by: R2 RRCC GIU

Initial Map Creation: 07 September 2017, 1200 EDT

Coordinate System: WGS 1984 World Mercator

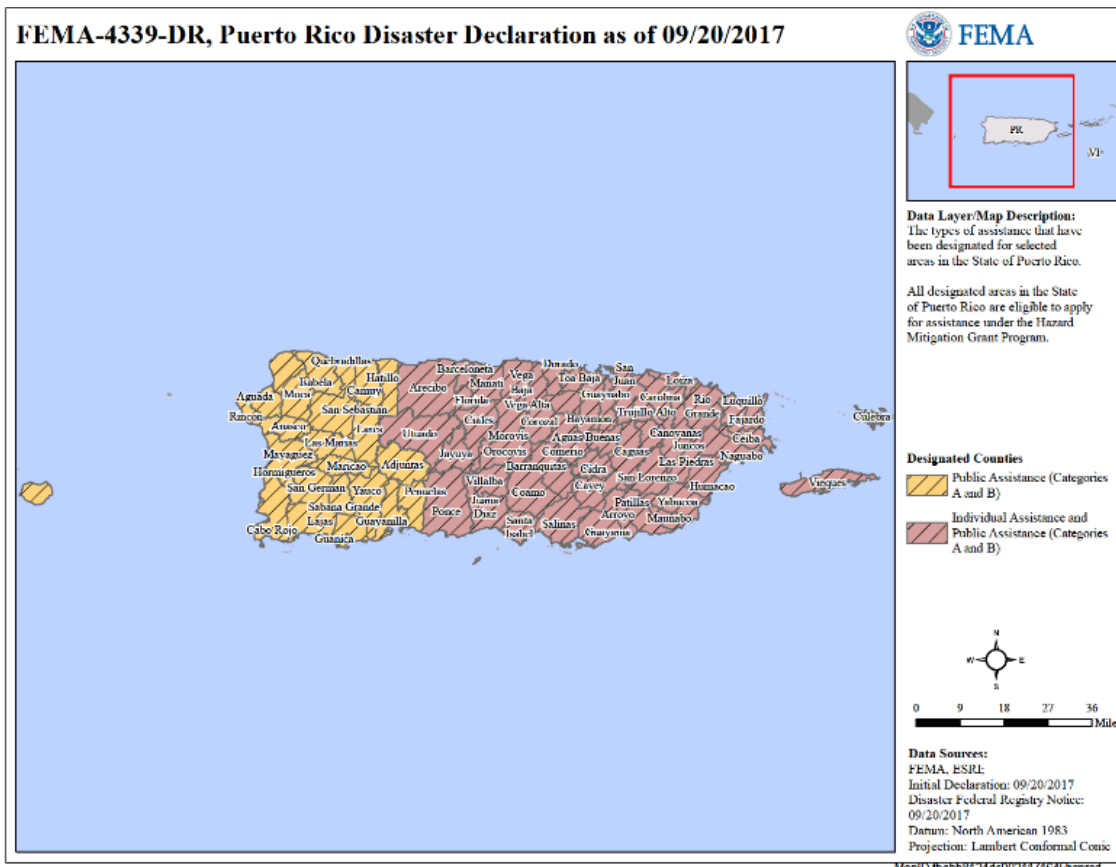
DECLARATIONS FOR HURRICANE MARIA

Puerto Rico.

Emergency Declaration. The President has signed Emergency Declaration FEMA-3391-EM for Puerto Rico.

On 9/20, The President has signed a Disaster Declaration FEMA-4339-DR for Puerto Rico.

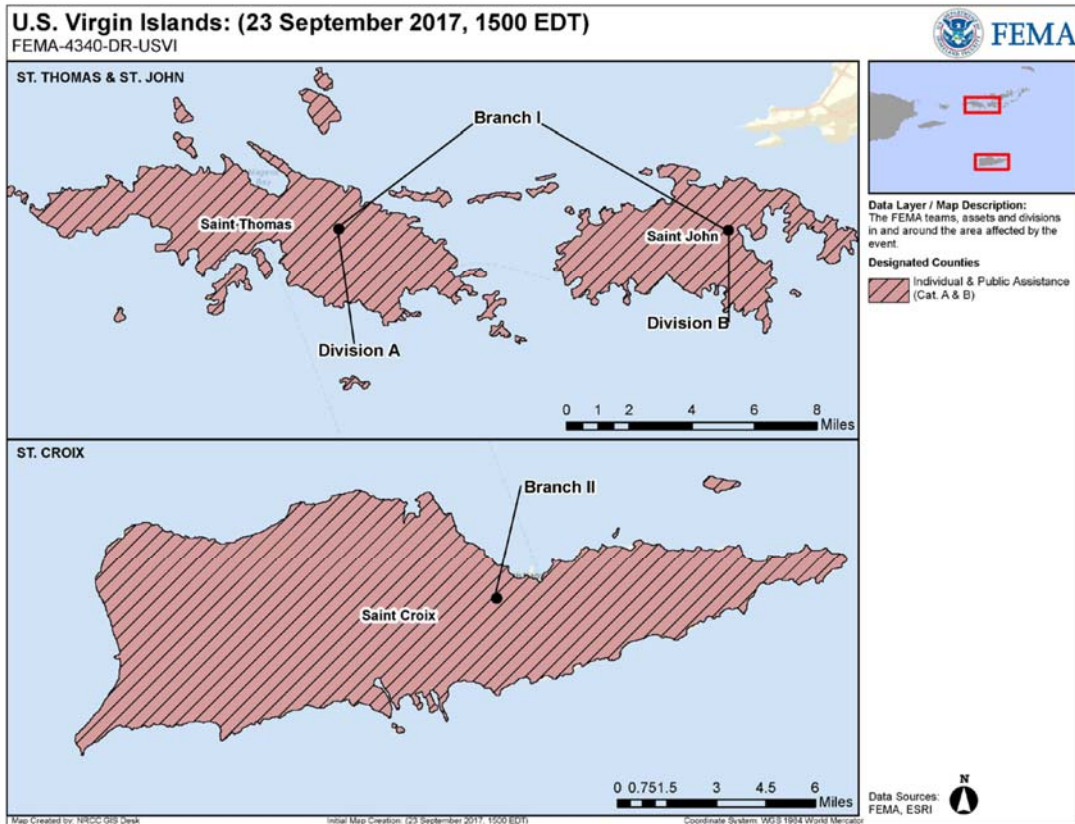
The White House initial statement covers 54 municipalities. The municipalities included in the disaster declaration are: Aguas Buenas, Aibonito, Arecibo, Arroyo, Barceloneta, Barranquitas, Bayamón, Caguas, Canóvanas, Carolina, Cataño, Cayey, Ceiba, Ciales, Cidra, Coamo, Comerio, Corozal, Culebra, Dorado, Fajardo, Florida, Guayama, Guaynabo, Gurabo, Humacao, Jayuya, Juana Díaz, Juncos, Las Piedras, Loíza, Luquillo, Manati, Maunabo, Morovis, Naguabo, Naranjito, Orocovis, Patillas, Ponce, Rio Grande, Salinas, San Juan, San Lorenzo, Santa Isabel, Toa Baja, Toa Alta, Trujillo Alto, Utuado, Vega Alta, Vega Baja, Vieques, Villalba, Yabucoa.



U.S. Virgin Islands.

Emergency Declaration. The President has signed Emergency Declaration FEMA-3390-EM for the Territory of the U.S. Virgin Islands for Hurricane Maria.

On 9/20, The President has signed a Disaster Declaration FEMA-4340-DR for the Territory of the U.S. Virgin Islands for Hurricane Maria.



FUNDING FOR IRMA AND MARIA

Mission Assignment Number	Purpose	Start Date	End Date	Total Amount	Indirect Costs	Amt. Available	Daily Burn Rate	Used	Balance
4335DR-VI-EPA-01 (X06)	EPA to FEMA R2 RRCC (Colts Neck, NJ) and FEMA NRCC (Washington, DC)	09/07/17	10/31/17	\$100,000	\$10,466	\$89,534	\$2,700	\$70,697	\$18,837
4335DR-VI-EPA-06 (X12)	EPA to FEMA RRCC, JFO, EPA REOC, State EOC, PDA & NRA Teams and other coordination venues	09/02/17	10/31/17	\$2,000,000	\$209,329	\$1,790,671	N/A	\$1,534,823	\$255,848
4336DR-PR-EPA-01 (X10)	EPA to FEMA RRCC. Funding for EPA command centers is authorized.	09/10/17	10/10/17	\$125,000	\$13,082	\$111,918	N/A	\$86,853	\$25,065
4336DR-PR-EPA-02 (X15)	Assess oil & hazmat releases, contaminated debris & other environmental events in PR	09/09/17	10/31/17	\$1,008,000	\$105,502	\$902,498	N/A	\$713,777	\$188,721
4335DR-VI-EPA-02 (X07)	Assess oil & hazmat releases, contaminated debris & other environmental	09/07/17	11/30/17	\$1,008,000	\$105,502	\$902,498	\$15,000	\$755,096	\$147,402

	events in VI								
4335DR-VI-EPA-04 (X11)	Removal, cleanup and disposal of oil & hazmat; collect and dispose of HHW; monitor immediate threats to public H&S and the environment in the VI	09/13/17	11/30/17	\$10,000,000	\$1,046,646	\$8,953,354	\$80,000	\$1,188,160	\$7,765,194
4339DR-PR-EPA-03 (X16)	Removal, cleanup and disposal of oil & hazmat; collect and dispose of HHW; monitor immediate threats to public H&S and the environment in PR	09/28/17	10/30/17	\$10,000,000	\$1,046,646	\$8,953,354	\$100,000	\$1,391,963	\$7,561,391
4339DR-PR-EPA-04 (X17)	Coordinate/Execute all necessary assessments, evaluations, sampling and analytical services/support to ensure the safety and quality of drinking water & wastewater	9/30/2017	12/31/2017	\$6,000,000	\$627,988	\$5,372,012	\$15,000	\$148,725	\$5,223,287
4339DR-PR-EPA-01 (X18)	EPA to FEMA NRCC or PR JFO/EOC	9/23/17	11/30/17	\$303,000	\$31,712	\$271,288	\$5,000	\$110,439	\$160,849
4340DR-VI-EPA-01 (X19)	EPA to FEMA NRCC or USVI JFO/EOC	9/23/17	11/30/17	\$130,000	\$13,606	\$116,394	N/A	\$0	\$116,394
4340DR-VI-EPA-04 (X20)	EPA to RRCC, JFO, EPA REOC, State EOC and other coordination venues to support FEMA response operations in the USVI	9/17/17	11/30/17	\$2,100,000	\$219,795	\$1,880,205	\$55,000	\$280,079	\$1,600,126
VI-17090102-EPA-01 (X03)	EPA to FEMA R2 RRCC (Colts Neck, NJ)	09/02/17	09/11/17	\$10,000	\$1,046	\$8,954	N/A	\$8,954	\$0
PR-17090102-EPA-01 (X05)	EPA to FEMA R2 RRC and other coordination venues as necessary	09/01/17	09/11/17	\$20,000	\$2,093	\$17,907	N/A	\$17,907	\$0
3384EM-PR-EPA-01 (X04)	EPA to FEMA RRCC, JFO, EPA REOC, State EOC, PDA and NRA Teams and other coordination venues	09/06/17	09/16/17	\$75,000	\$7,850	\$67,150	N/A	\$64,800	\$2,350
Grand Total						\$29,437,737	N/A	\$6,372,272	\$23,065,465

NOTE: Transitioning from using MA 4335DR-VI-EPA-02 to MA 4335DR-VI-EPA-04, MA 4336DR-PR-EPA-02 to MA 4339DR-PR-EPA-03 and MA

FUEL WAIVERS, ORDERS, AND NO ACTION ASSURANCES

- On 9/26 EPA approved a request from PR for an emergency fuel waiver to minimize disruptions of the supply of diesel fuel for mobile nonroad generators and pumps used for emergency purposes. EPA renewed the waiver on 10/11. It now expires on 10/30/17. The waiver allows parties in Puerto Rico to sell, distribute and use heating oil and marine fuel designated for use in Emission Control Areas (ECA marine fuel) that exceed the 15 parts per million (ppm) sulfur standard if the fuel meets certain conditions. EPA and DOE are actively monitoring the fuel supply situation.
- On 9/27 EPA HQ issued an amended No Action Assurance (NAA) concerning the importation, sale, donation or distribution of mobile power generators in Puerto Rico to increase the number of generators available for use during the recovery from the devastation of Hurricane Maria. The NAA supersedes one issued by EPA on 9/22 and covers two categories of mobile power generators. The NAA allows the import and sale of mobile power generators that, while not otherwise legal for import and sale in PR, satisfy air pollution emissions standards that are similar to current EPA standards; and also allows for the import and use of other mobile power generators that do not meet standards similar to current EPA standards, but only if, among other things, they are removed from service and not operated whatsoever in Puerto Rico after 3/31/18.
- On 9/27 EPA HQ issued an essentially identical NAA concerning the importation, sale, donation or distribution of mobile power generators in the U.S. Virgin Islands.
- On 9/29 EPA Region 2 approved a request from Lilly del Caribe, Inc. for a 30-day extension of the 90-day limit on the accumulation of hazardous waste on-site. Such an extension is permitted under EPA's RCRA regulations where necessary "due to unforeseen, temporary, and uncontrollable circumstances." Lilly del Caribe informed EPA that because of impacts from the hurricanes, it is currently not possible to make hazardous waste shipments out of Puerto Rico.
- On 10/2 EPA HQ issued a No Action Assurance to Merck, Sharp & Dohme Corp. to enable the continued use of four emergency generators located at its Las Piedras, Puerto Rico facility. The NAA expires on October 31, 2017.
- On October 6, 2017 OECA, with Region 2 input, issued a CAA NAA to PREPA to provide the utility relief from certain permit conditions and permitting requirements, including emission limits, hours of operation limits, fuel usage restrictions, and restrictions on the shutdown or bypass of pollution control equipment for most of their electric generating units operating in Puerto Rico. The NAA will expire on Nov. 17.
- On October 2, EPA HQ received an inquiry from FEMA and the White House regarding the possibility of accepting a donation of water purification tablets from the UN World Food Programme for immediate distribution and use in Puerto Rico. As these tablets are unregistered antimicrobial pesticides under FIFRA, OPP was asked to process a FIFRA § 18 emergency "crisis" exemption on an expedited basis. On October

4, Region 2 was asked to solicit the submission of a declaration of crisis and a request for the exemption from Puerto Rico. The tablets arrived in Puerto Rico on October 7, prior to the Governor's office having had an opportunity to respond and before issuance of an exemption; FEMA took possession and agreed to hold them until such time as Puerto Rico submitted a request and an exemption issued. On October 8, the Secretary of the Puerto Rico Department of Health signed and submitted the crisis declaration and request for exemption. EPA concurred on the request "for use of NaDCC tablets to purify water in Puerto Rico under the 'crisis' provisions of FIFRA section 18" shortly thereafter. The crisis exemption is good for 15 days. No additional shipments are currently scheduled or planned.

POSSIBLE UPCOMING LEGAL ACTIONS

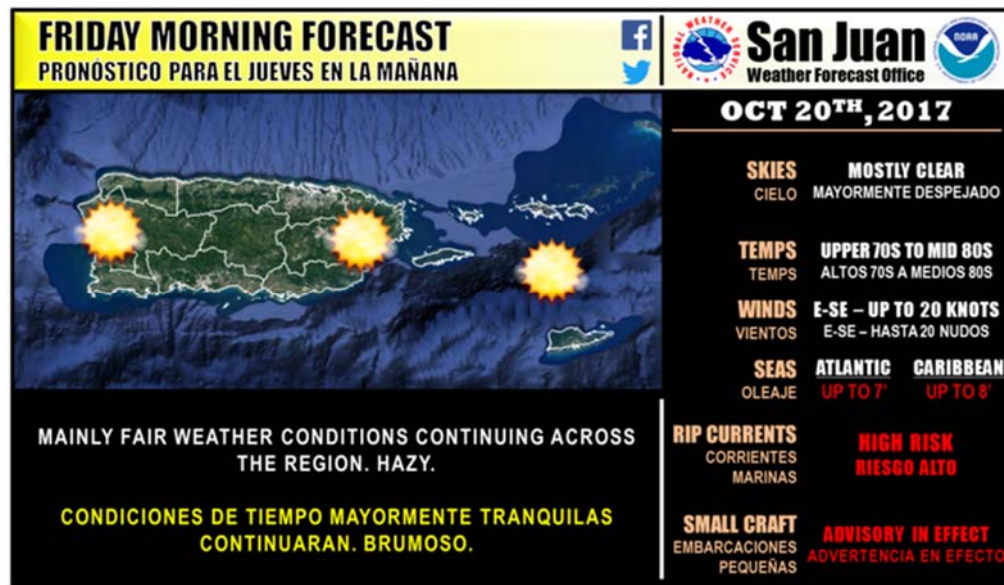
- EPA has also received a number of hurricane-related *force majeure* claims from entities in Puerto Rico. Among them are: a *force majeure* claim from PREPA regarding its compliance with certain requirements of a 1999 Clean Air Act consent decree; *force majeure* claims from PRASA, the P.R. Department of Transportation & Public Works and the P.R. Highway and Transportation Authority relating to those entities' compliance with existing Clean Water Act consent decrees with EPA; *force majeure* claims from Puma Energy Caribe, LLC and Total Petroleum Puerto Rico Corp. concerning their compliance with RCRA consent decrees; and a *force majeure* letter from the U.S. Navy concerning its compliance with the Federal Facilities Agreement regarding Vieques (the Atlantic Fleet Weapons Training Area Site). We are evaluating the various *force majeure* claims and will take appropriate action. We will likely receive additional *force majeure* claims in the days and weeks ahead.
- On 10/13 PREPA wrote to OECA to request a No Action Assurance under CERCLA, the Clean Water Act, RCRA and EPCRA. The request for the NAA under the Clean Water Act relates to the NPDES permits applicable to PREPA's four major power plants (San Juan, Palo Seco, Costa Sur and Aguirre) as well as SPCC and Facility Response Plan requirements. Region 2 and OECA are reaching out to PREPA to obtain additional information to help the Agency evaluate PREPA's request and develop a response.
- In addition, EPA Region 2 and OECA are evaluating a letter from Americas Generators, Inc., which was forwarded to EPA by Senator Rubio. The letter asserts that the No Action Assurances that EPA issued on 9/27 regarding mobile power generators in Puerto Rico and the USVI are too limited and that there should be greater latitude to import and sell non-compliant generators in PR and VI during this emergency period. EPA has initiated discussions with the Puerto Rico government to seek the Commonwealth's views on the issue, and we are also attempting to contact the USVI government.

ADDITIONAL THREATS TO THE U.S. CARIBBEAN.

Current Weather.

- **Puerto Rico and the U.S. Virgin Islands.**

- **Puerto Rico.** This Hazardous Weather Outlook is for Puerto Rico and the adjacent Atlantic Coastal Waters. On 10/20, rain and flash flooding remains a concern. Sustained winds in excess of 20 MPH (17 knots) expected mostly across the surrounding waters. Choppy/Rough seas up to 7 feet expected across the Caribbean waters and passages. There is a high risk of rip currents for most of the southeast and southwest beaches of Puerto Rico.



- **U.S. Virgin Islands.** On 10/20 through 10/22, the moisture and instability will continue to remain high as deep tropical moisture continues to penetrate across the region. Due to already saturated soils, any additional heavy rainfall will result in urban and gut flooding as well as some mudslides near steep terrain.

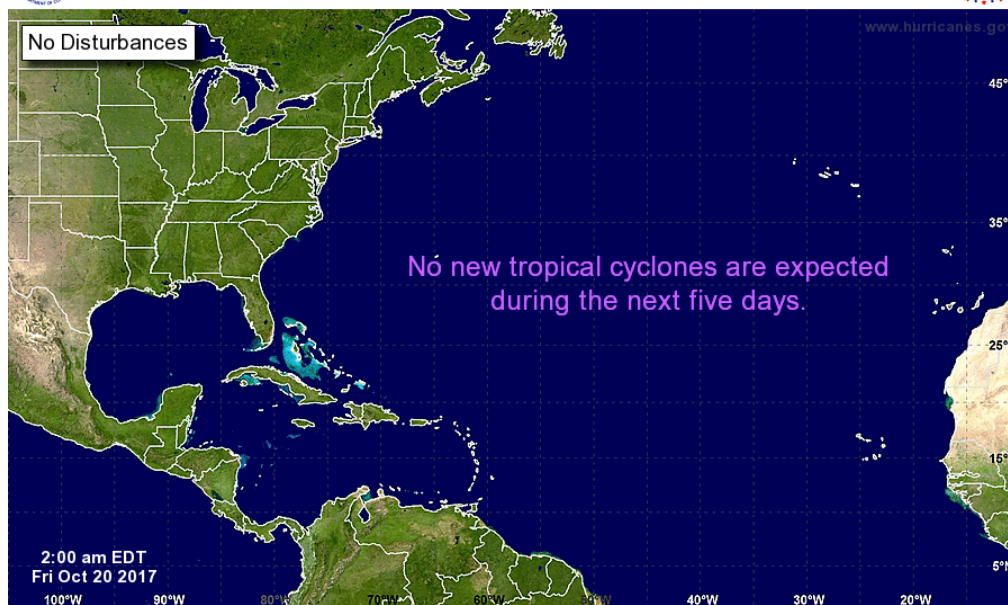
FUTURE WEATHER OUTLOOK.

- Tropical cyclone activity is not expected from 10/20 through 10/24.



Five-Day Graphical Tropical Weather Outlook

National Hurricane Center Miami, Florida



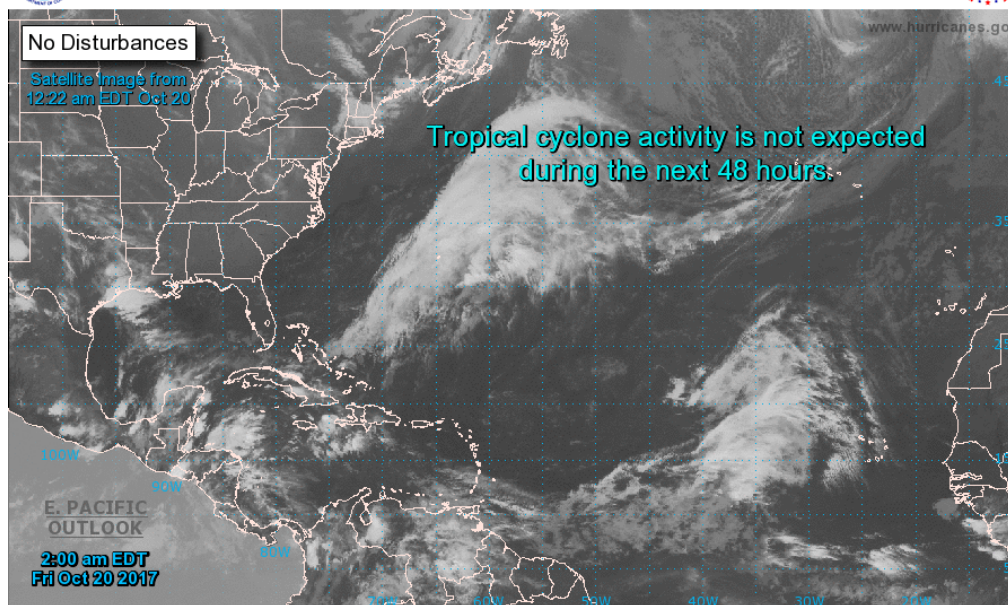
Current Disturbances and Five-Day Cyclone Formation Chance: ✖ < 40% ✖ 40-60% ✖ > 60%

Tropical or Sub-Tropical Cyclone: ○ Depression ○ Storm ○ Hurricane
○ Post-Tropical Cyclone ✖ Remnants



Two-Day Graphical Tropical Weather Outlook

National Hurricane Center Miami, Florida



Current Disturbances and Two-Day Cyclone Formation Chance: ✖ < 40% ✖ 40-60% ✖ > 60%

Tropical or Sub-Tropical Cyclone: ○ Depression ○ Storm ○ Hurricane
○ Post-Tropical Cyclone ✖ Remnants